Homemakers' HOW-TO-DO-IT

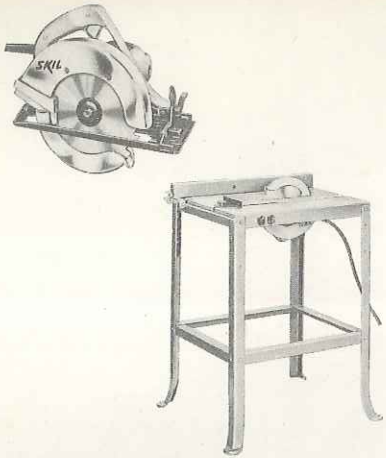
30 POPULAR HOME IMPROVEMENTS OF VALUE TO EVERY HANDYMAN AND AMATEUR CRAFTSMAN

Contains

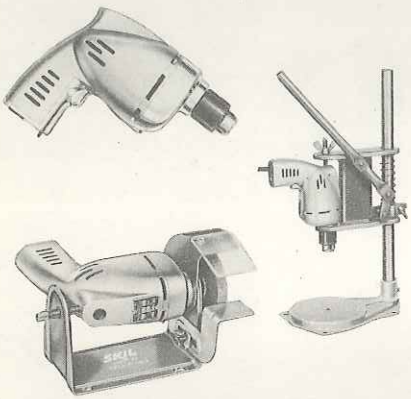
5 little wall shelves • 3 bathroom cabinets • Bookcase • Coffee table • 3-drawer plywood desk • Footstool • Magazine basket • Tennis table • Room dividers and screens • Carports and patio roofs • Dutch door • Louver door
And many other projects.

PRICE 25¢

Another Home Shop Guide by SKIL



Power circular saw cuts many times faster than a handsaw; adjustable for cutting depth, mitering, grooving, etc. Quickly attaches to stand to form table saw.



Power hand drills for metal drilling or wood boring serve many other purposes also. Special stands transform hand drill to drillpress, bench grinder or disk grinder.

These rugged orbital and belt sanders eliminate slow and tedious hand sanding. Each has its own particular features. For bench work a belt sander mounts on a small stand.

Have Fun and Save!

Are you planning on getting some tools to enjoy a woodworking hobby, or to save money by making your own home improvements? An amazing number of homemakers everywhere are thinking and doing just that! A survey covering 9,000 homeowners showed that 67 percent of those having homes in the $10,000 to $25,000 class, saw and hammer their way through all kinds of home-repair, improvement and remodeling jobs.

SKIL Aids to Do-It-Yourselfers

In view of the greatly increased interest of homemakers in doing such work themselves, we now take pleasure in presenting this "how-to-do-it" booklet which contains many projects that are most popular in the average home. Many of these are extremely simple, and therefore especially suited for beginners in the use of tools. Some projects that seem more involved are nevertheless within the scope and ability of the average enterprising homemaker. Specific dimensions are included in nearly all of the projects, but some dimensions are omitted in other projects which are variable in size and arrangement. Material lists are given on pages 30 and 31. These do not cover the simplest type of projects, nor those subject to dimensional change.

The New Trend in Home Shops

In addition to basic hand tools, you'll want good power tools, which will save you a great deal of time and effort on many jobs. A large number of do-it-yourselfers prefer small, portable power tools to large, cumbersome workshop machines that are more or less stationary. One reason for this trend is that you can take a lightweight, portable tool like a SKIL Saw, Drill or Sander, to a job, but it's impossible to move a big job like an attic conversion, into a workshop.

Cutting large panels, trimming doors, and sawing long pieces of lumber accurately, which is so difficult to do on a stationary saw table, is an easy chore for a SKIL Saw. And, if you want the desirable features of a saw table for cutting small pieces of stock, you simply get this as a SKIL accessory. It is lightweight and accurate. The saw can be attached in a few moments, and then is adjusted for the job at hand. Other holders quickly transform a power drill to a drill press or a bench grinder.

Another reason why many homeowners are switching to portable power tools is that a complete home workshop can be tucked away in a cabinet or in a few drawers where it is out of sight, yet available for instant use. Then one room can serve both as a workshop and a rumpus room, as occasion may demand. Also, if you're likely to change the location of your residence from time to time, you'll find that it is much easier and less costly to move an assortment of small power tools, than large, heavy workshop machines.

This booklet was planned and prepared expressly for the SKIL Corporation by Enno R. Haan, Toolcraft and Home-Improvement Consultant, formerly Technical and Home-craft Editor of Popular Mechanics Magazine.

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Homeowner's Handy Reference Data

LUMBER
PLYWOOD
HARDBOARD
NAILS
WOOD SCREWS

Lumber Dimensions

No doubt you've noticed, when buying lumber dressed or surfaced on four sides (S4S), that the actual thickness and width is less than the nominal lumber dimensions. For example, a 2 x 4 stud is actually 1⅝ by 3⅝ in., and a 1 x 10 board measures 25/32 by 9½ in. The nominal sizes are those to which lumber was originally sawed. Obviously these are much simpler to use than the fractional dressed sizes when ordering lumber. However, the dimensions often given in constructional plans, as those in this booklet, refer to the dressed sizes in order to avoid confusion where other exact dimensions are also included in the plans. For the sake of brevity in plans and material lists the fraction ¾ often is used instead of 25/32 to indicate the finished thickness of 1-inch stock.

When planning a project, try to make use of lumber as you get it, without further reducing its width. For example, a bookshelf or cabinet can have its shelves, sides, top and bottom of standard width stock. Stock lumber comes in 6 to 20-ft lengths, in multiples of 2 feet.

LUMBER SIZES

(Does not refer to flooring, siding, etc.)

Nominal sizes thickness & width	Dressed sizes (S4S) thickness & width
1 x 1	25/32 x 25/32
1 x 2	25/32 x 1⅝
1 x 3	25/32 x 2⅝
1 x 4	25/32 x 3⅝
1 x 6	25/32 x 5⅝
1 x 8	25/32 x 7½
1 x 10	25/32 x 9½
1 x 12	25/32 x 11½
2 x 2	1⅝ x 1⅝
2 x 3	1⅝ x 2⅝
2 x 4	1⅝ x 3⅝
2 x 6	1⅝ x 5⅝
2 x 8	1⅝ x 7½
2 x 10	1⅝ x 9½
2 x 12	1⅝ x 11½
4 x 4	3⅝ x 3⅝
3 x 6	2⅝ x 5⅝
6 x 6	5⅝ x 5⅝

Note: Surfacing reduces width ⅜ in. on nominal widths up to 7 in., but a full ½ in. on nominal widths over 7 in. Actual dimensions of dressed stock may vary slightly from above standard sizes due to moisture content of wood and machining variations.

Kinds and Grades of Lumber

You can make substantial savings when buying lumber, if you can specify the kind and grade which will be satisfactory for the job at hand. Uninformed homeowners often buy the best grades of wood for jobs on which cheaper grades would serve equally well.

Lumber is divided into two broad categories of softwood and hardwood. Softwood comes from evergreen trees, hardwood from broadleaf trees that shed leaves annually. These terms do not designate the degree of hardness of wood; some softwoods are actually harder than many hardwoods. Softwoods, which include white pine, cedar, cypress, fir, spruce and redwood, are generally used for most workshop and home-improvement projects. Hardwoods including oak, maple, birch, walnut, mahogany, gum and basswood, generally are used for cabinet work, floors and trim; are more expensive as a rule than softwoods.

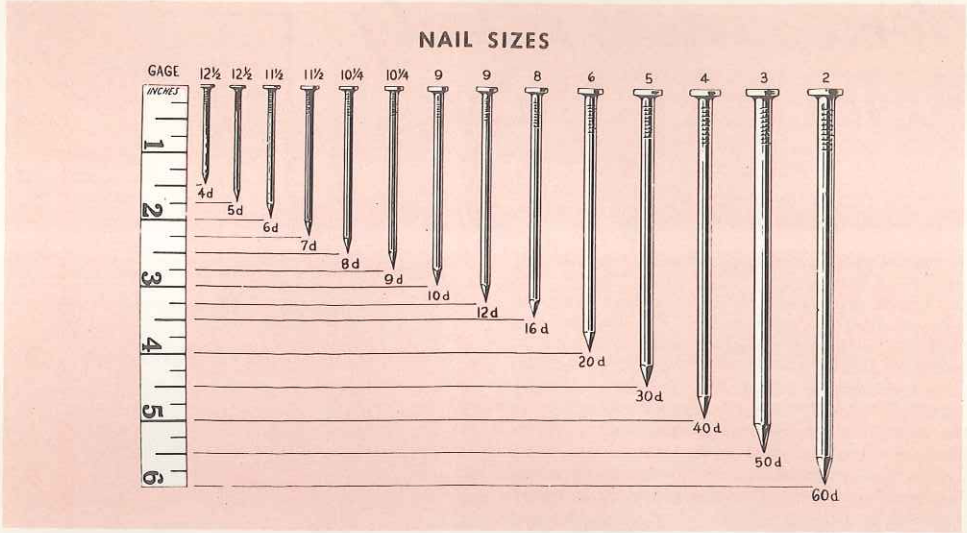
Grading of softwood and hardwood is different, yet quite similar. There are two general classifications of quality, and these are further subdivided. The best grades of softwood are called *select* or *finish*, and include four grades, A, B, C and D. Sometimes the A and B grades are called 1 and 2 clear, or firsts and seconds, or B and better (B&Btr). Wood of these grades is almost free from blemishes, and excellent for fine cabinet work, especially where a natural finish is desired. The select C and D grades have minor imperfections including knots that can be concealed with paint.

The less select or *common* grades of softwood have features that detract from the appearance of the finish, but serve general utility and construction purposes. The grades are Nos. 1 to 5 in the order of diminishing quality. The number of knots and blemishes are about the same in all grades. No. 1 boards have tight knots of limited size. No. 2 is the all-purpose utility grade; it has large and coarse defects and some unsound knots. No. 1 is suitable for painting, and No. 2 is used chiefly for coverage where the wood is not painted or otherwise finished. No. 3 may have knot holes and coarser defects than No. 2, and may also contain an increased amount of pitch. No. 4 is useful for temporary structures, while No. 5 has many imperfections although generally suited for rough jobs like crating.

The highest grade of hardwood is termed *firsts* and the next grade *seconds;* both may be combined in one grade called *firsts and seconds* (FAS). The third grade is called *selects*, and this is followed by *No. 1 common; No. 2 common; sound wormy; No. 3A common, and No. 3B common.*

Cost of Lumber

This not only varies with the kind and grade of wood, but also with different localities. A *board foot* is the basic unit of measurement on which cost is calculated. One board foot is the amount of lumber in a piece 1 ft. square and 1



in. thick (nominal sizes). A piece of stock originally 1 ft. square and 2 in. thick, comprises 2 board feet. The rate of cost per thousand board feet is then applied. You can also get cost quotations per running foot of boards. Millwork such as trim, screen stock, etc., is sold by the running foot.

Plywood

Plywood consists of several layers of wood of which the grain in alternate layers is arranged at right angles to produce maximum strength. The most popular thicknesses range from ¼ to 1 in. Standard sheets of plywood are 4 ft. wide, and from 6 to 12 ft. long, in steps of 2 ft. Fir plywood is used most extensively, but plywoods having outer layers of hardwood in many attractive grains are available also. By looking at the edge of plywood, you can determine whether it is the *veneer-core* type, consisting of from 3 to 7 plys, or the *lumber-core* type, consisting of a thick, glued-up wood core covered with one or two plys on each side. Each type of plywood has some particular advantages.

Fir plywood that is to be exposed to moisture should be of the *exterior* type as differentiated from the *interior* type. This is bonded with waterproof glue, and does not delaminate when exposed to moisture. There are four grades of fir plywood; A, B, C and D. These letters indicate the quality of the face veneers. Thus plywood designated as AA has both face veneers of top quality. An AD designation means top quality on one side, but less attractive appearance on the other, which may be concealed. In addition to sanded and unsanded surfaces, plywood also comes in striated and in novel raised-grain surfaces.

Hardboard

This material comes in sheets like plywood and in thicknesses from ⅛ to 5/16 in. It can be obtained with one side smooth and the other having a screen impression, or with both sides smooth. Hardboard is made of cellulose fibers bonded together with a cement while subjected to great pressure, resulting in tough, rigid sheets which are somewhat flexible and can be bent. The material does not split, crack or splinter; can be worked with ordinary tools. There are two basic types; the *standard* and the *tempered*. The latter is very dense and is impregnated with a compound that greatly hardens the board, and also makes it more moisture-resistant. A perforated variety, which has a decorative value, aids ventilation and also permits attachment of wire hooks to hold things. Striated and imitation leather surfaces are available, as well as one kind that is already primed for painting. Panels of the material, prefinished on one side with colorful baked enamels also are available.

Nails

Common nails, box nails, casing nails, finishing nails and brads, all made of wire, are the kinds most generally used. For exceptional holding power you can get coated and etched nails, nails having barbed or ringed shanks, or those having spiral ridges and flutes that cause the nails to turn while being driven. Rustproof nails such as those made of aluminum, should be used in places exposed to moisture.

When nailing one piece of wood to another, select a nail which is about three times as long as the thickness of the piece being attached, in order to obtain maximum holding power. When driving nails into hardwood, it is advisable to drill pilot holes first, slightly smaller than the nails. A pilot hole often prevents a piece of wood from splintering when a nail is driven close to its edge or end.

Wood Screws

Wood screws have greater holding power than nails. They also permit an assembly to be dismantled easily or reassembled again. For maximum holding power, at least half of the threaded end of a wood screw should be firmly imbedded in wood to which an object or other

piece of wood is screwed. Screws generally require pilot and body holes although this is omitted sometimes in softwood. Pilot-hole sizes are figured on the basis of the core diameter of the screw as measured at the bottom of the threads. See the footnote on the table at the right for recommended sizes of pilot holes for softwood and hardwood. Clearance holes for screw bodies (Threadless portions) are drilled as deep as the bodies extend into the wood. Wax or soap rubbed on threads of screws makes them much easier to drive. For driving, use a screwdriver of proper size, of which the blade tip just fits the slot of the screw head.

Common wood screws have flat, oval or semi-round heads. The first two require countersinking. This must be done carefully, using a depth gauge on the countersink to prevent making the hole too deep and too wide. When screws must be sunk deeply into wood so that the threaded ends will project a desired distance, a counterbored hole of suitable depth, and slightly larger in diameter than the screw head, is required. It should be drilled or bored before drilling the body or pilot holes, if a spur-end wood bit is used, since this cannot take hold if the body and pilot holes are already drilled. Counterbored holes also permit the use of putty or plugs to close the holes and conceal the screw heads.

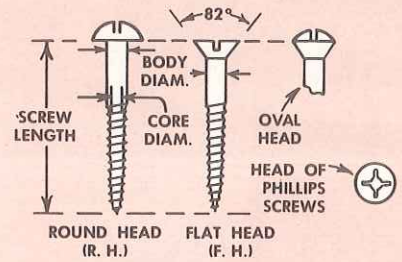
In purchasing wood screws you indicate (1) the length; (2) the thickness in wire-gauge numbers; (3) the type of head (f.h. or r.h.); (4) the material (steel, brass, etc.); (5) the finish (bright steel, blued, cadmium, chrome plated, etc.). All screws are not made in all gauges as shown in the table at the lower left. The table at the right gives the screw-body thickness in wire-gauge numbers as well as in decimals and fractions of an inch; also gives the size of drills for body-clearance holes, and the maximum head diameter of screws, which is useful when countersinking or counterboring.

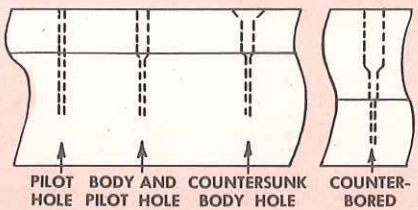
Range of Standard Thicknesses for Screws of Various Lengths

(Screws from No. 12 to No. 20 made in even gauge numbers only)

LENGTHS (inches)	THICKNESSES (gauge numbers)
¼	0 to 3 inclusive
⅜	2 to 7 "
½	2 to 8 "
⅝	3 to 10 "
¾	4 to 11 "
⅞	6 to 12 "
1	6 to 14 "
1¼	7 to 16 "
1½	6 to 18 "
1¾	8 to 20 "
2	8 to 20 "
2¼	9 to 20 "
2½	12 to 20 "
2¾	14 to 20 "
3	16 to 20 "
3½	18, 20 & 24
4	18, 20 & 24

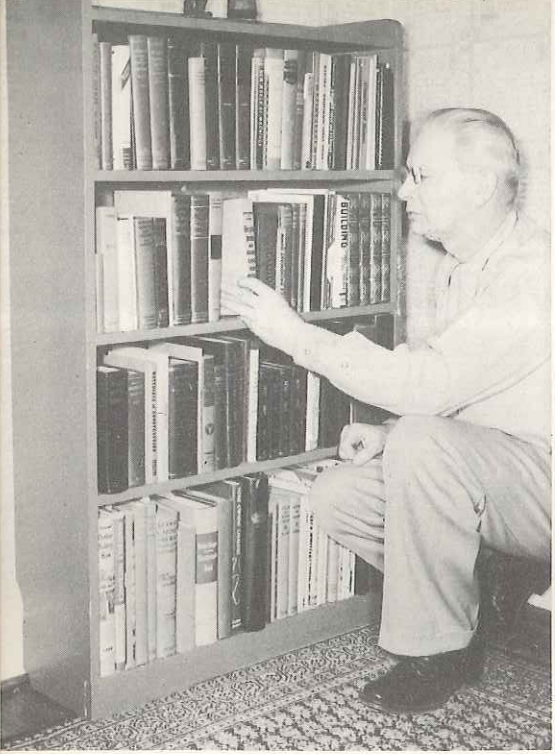
WOOD SCREWS

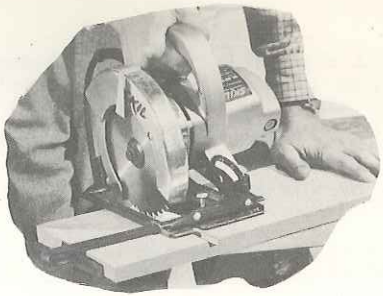




GAUGE NUMBERS	DECIMAL DIAM. OF BODY	FRACTIONAL DIAM. OF BODY (nearest 64th)	DRILL NUMBER OR LETTER FOR BODY HOLE	MAXIMUM HEAD DIAMETER
0	.060	1/16 −	52	.119
1	.073	5/64 −	47	.146
2	.086	5/64 +	42	.172
3	.099	3/32 +	37	.199
4	.112	7/64 +	32	.225
5	.125	1/8 −	30	.252
6	.138	9/64 −	27	.279
7	.151	5/32 −	22	.305
8	.164	5/32 +	18	.332
9	.177	11/64 +	14	.358
10	.190	3/16 +	10	.385
11	.203	13/64 −	4	.411
12	.216	7/32 −	2	.438
14	.242	15/64 +	D	.491
16	.268	17/64 +	I	.544
18	.294	19/64 −	N	.597
20	.320	21/64 −	P	.650
24	.372	3/8	V	.756

Note: In general, pilot holes should be about 90% of screw-core size for hardwood, and 70% for softwood. Phillips screws should have slightly larger pilot holes than slotted screws.

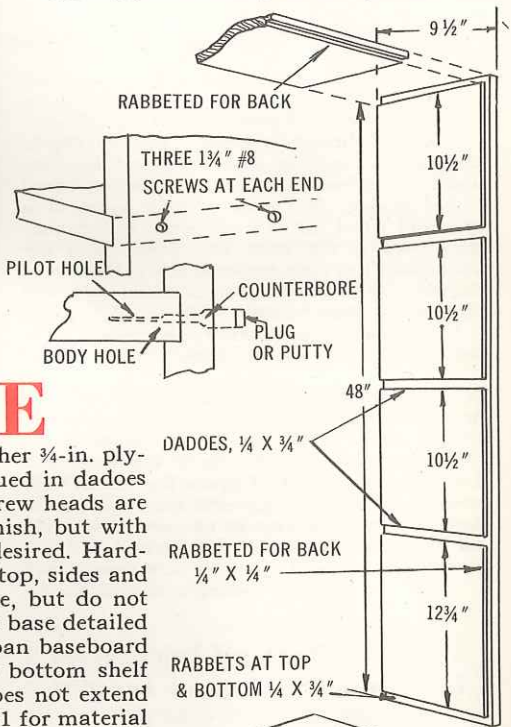


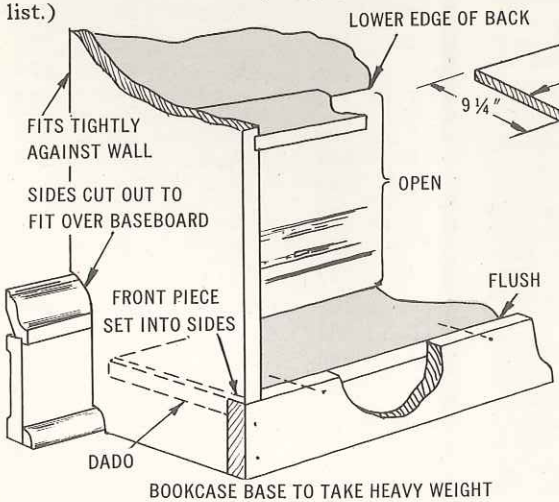


Dado and rabbet cuts of uniform depth and width are easy with a SKIL Saw. Set blade for right depth and simply make several passes through work.

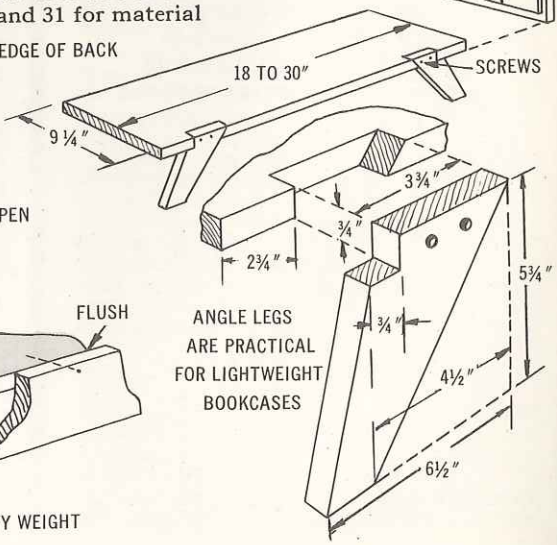
BOOK CASE

For this portable bookcase you can use either ¾-in. plywood or stock lumber. The shelves are glued in dadoes and are held securely with screws. The screw heads are concealed with wood putty for painted finish, but with wood "boat plugs" if a natural finish is desired. Hardboard or plywood back fits rabbets in the top, sides and bottom. Angle legs give a neat appearance, but do not bear up under heavy load of books like the base detailed at lower left. Latter also has cutouts to span baseboard so case will set tightly against wall. The bottom shelf must be reduced in width and the back does not extend below the second shelf. (See pages 30 and 31 for material list.)

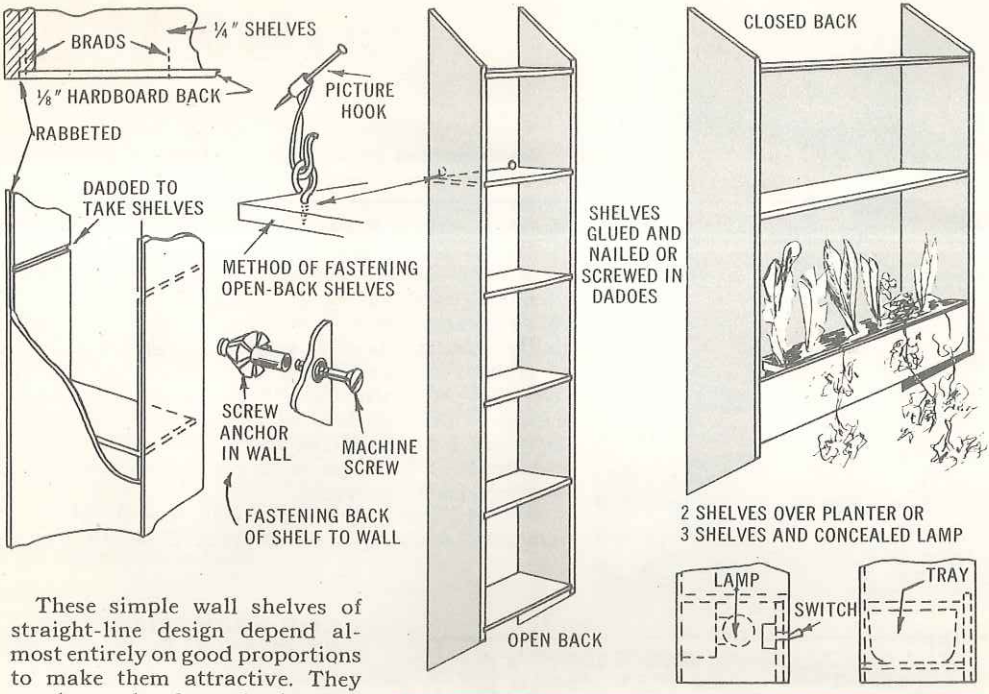




BOOKCASE BASE TO TAKE HEAVY WEIGHT

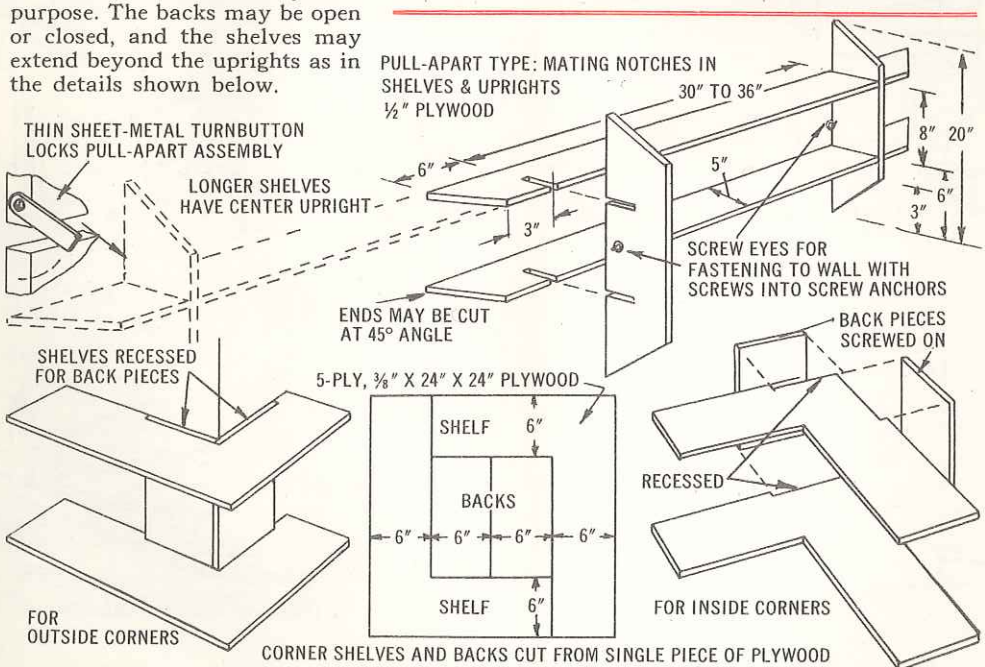


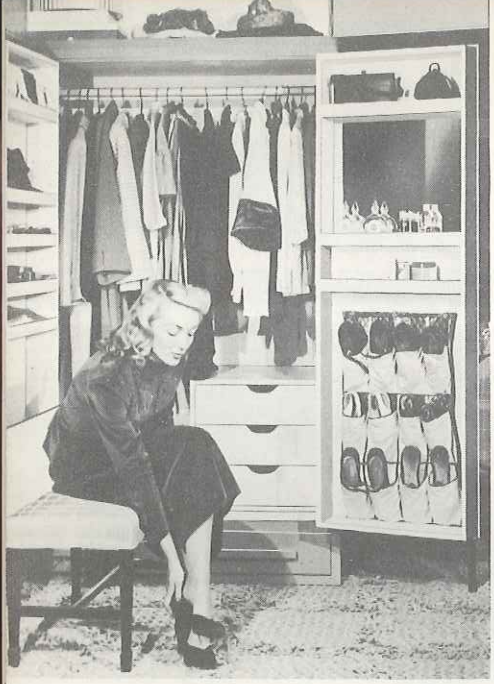
ANGLE LEGS
ARE PRACTICAL
FOR LIGHTWEIGHT
BOOKCASES



5 Little WALL SHELVES

These simple wall shelves of straight-line design depend almost entirely on good proportions to make them attractive. They can be made of wood, plywood, hardboard or even sheet plastic. Your SKIL Saw is an ideal tool for cutting the rabbets, dadoes and notches, as well as sawing the material to size. Thickness of stock is determined by the size of the shelves as well as by their purpose. The backs may be open or closed, and the shelves may extend beyond the uprights as in the details shown below.



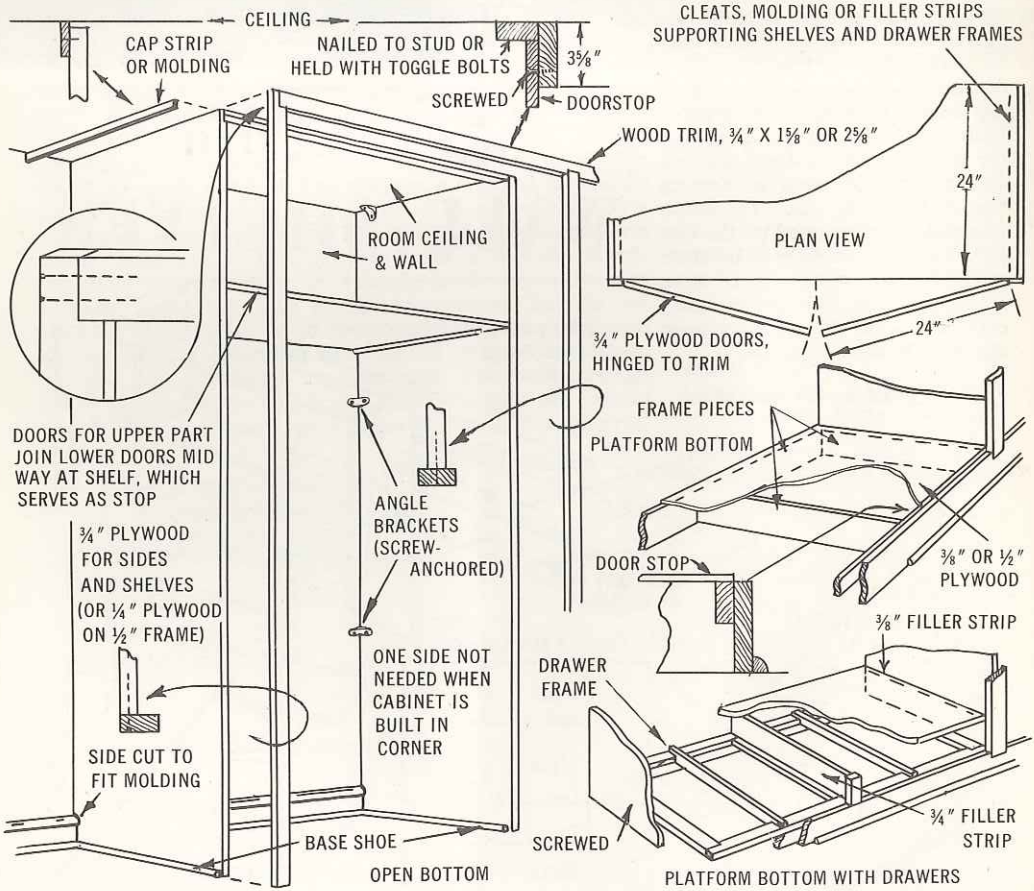


STORAGE

Cabinets that have almost any desired arrangement of shelving, partitions and drawers, are easy to build from ¾-in. plywood, following the simplified assembly methods shown. Plywood and other large panels can be sawed more accurately and more easily with a SKIL Saw than on any average workshop table saw. In designing cabinets, try to use half or full-width panels to avoid unnecessary sawing and waste. Many builders make cabinets about 24 in. deep and 48 in. wide.

A room wall and ceiling may serve as the back and top of a permanent floor-to-ceiling cabinet as shown below. If it is built in a corner, such a cabinet requires only one side panel. The room floor can serve as the cabinet floor, but a platform bottom, with or without drawers, can be provided.

You can attach plywood to walls securely with angle brackets, screwing these to studs if possible, or at-

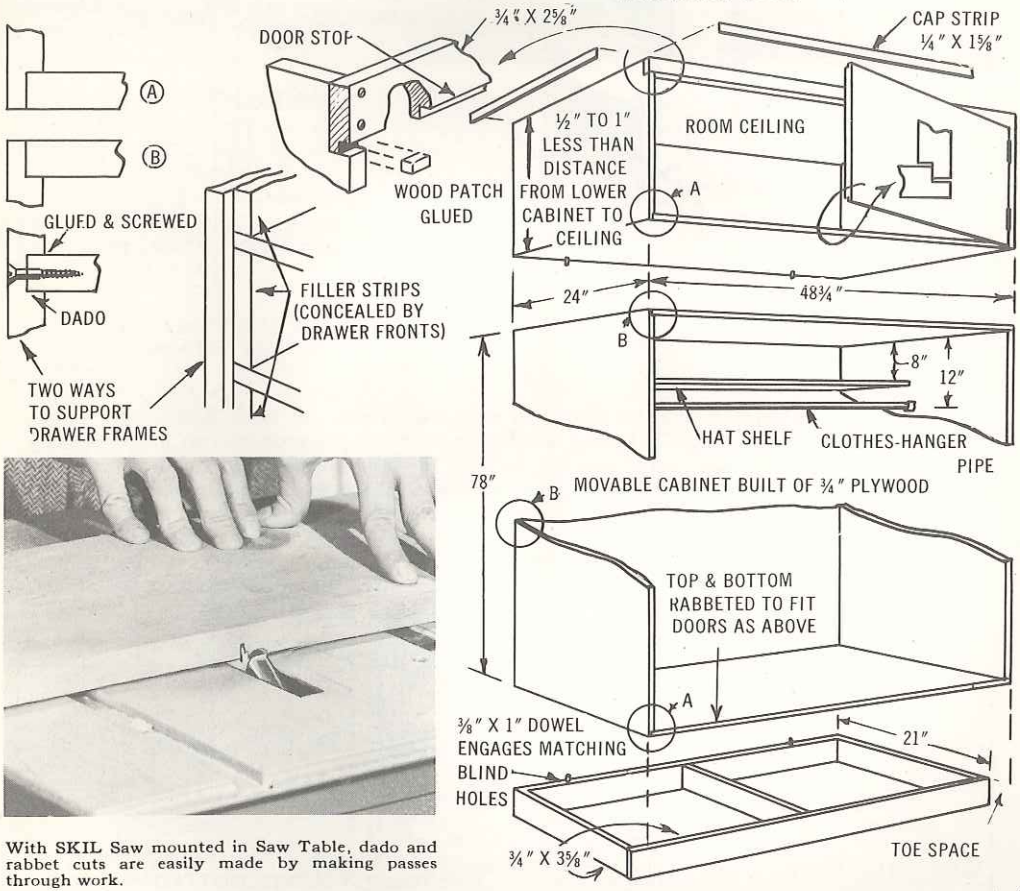


CABINETS

taching them to plaster securely by means of screw anchors or toggle bolts. Wood strips used to support doors or shelves can be fastened in the same manner. You can make hollow-core panels of thinner plywood or wallboard glued or nailed to frames of stock lumber, and use these for making cabinets, but producing such panels involves much more work than using ¾-in. plywood, and may not result in sufficient savings in cost to justify the means.

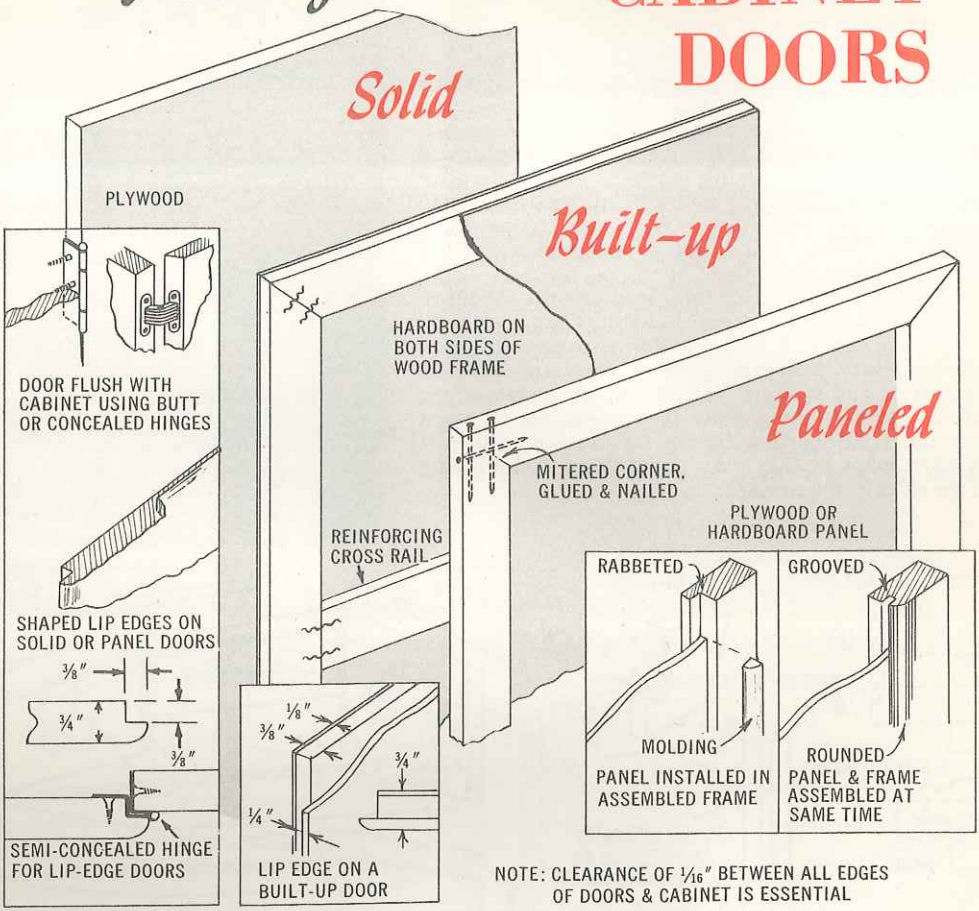
Movable cabinets may be placed against a wall or they may be used as room dividers. They should be completely enclosed and mounted on bases that provide toe space. Separate upper cabinets are optional. Cap strips can be used to hide the clearance at the ceiling and give the cabinet the appearance of being permanent. Supporting frames for drawers may rest on filler strips or they may be installed in dado cuts in the sides of the cabinet.

Photos courtesy of Douglas Plywood Association



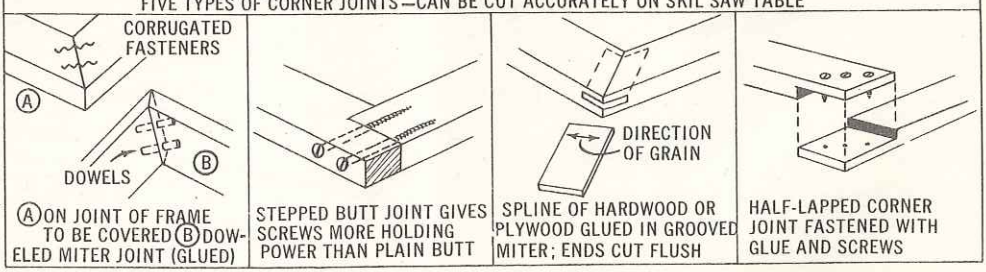
With SKIL Saw mounted in Saw Table, dado and rabbet cuts are easily made by making passes through work.

Make your own CABINET DOORS



Basic types of cabinet doors that you can make with ease on your SKIL Saw Table. A built-up door is much lighter than a solid door, and may be provided with lip edges by extending the covering material of one side beyond the frame edges. Plywood or hardboard for a panel-type door may fit in a rabbet or in a groove. In the latter case the panel and frame are assembled together. The mitered corner of a concealed frame or of a panel frame may be glued and nailed. Other corner joints are shown below. Miter joints do not show end grain like butt and half-lapped joints. Considerable added rigidity is obtained by using dowels or a spline at the mating edges of a glued miter joint if the parts fit accurately.

FIVE TYPES OF CORNER JOINTS—CAN BE CUT ACCURATELY ON SKIL SAW TABLE



Ⓐ ON JOINT OF FRAME TO BE COVERED Ⓑ DOWELED MITER JOINT (GLUED)

STEPPED BUTT JOINT GIVES SCREWS MORE HOLDING POWER THAN PLAIN BUTT

SPLINE OF HARDWOOD OR PLYWOOD GLUED IN GROOVED MITER; ENDS CUT FLUSH

HALF-LAPPED CORNER JOINT FASTENED WITH GLUE AND SCREWS

When building extra rooms in an attic, you can make excellent use of the low spaces at eaves by installing storage cabinets. That's a job where your SKIL Saw will prove its value in saving time and effort. Some of the cabinets can be fitted with clothes-hanger rods, others with shelves or drawers. If only drawers are desired, doors can be eliminated.

First, you install framing for the back wall of the cabinet. Then toenail studs edgewise to every third or fourth rafter, and to 2 x 2 plates to form the frames of the dividing partitions. Use wallboard for inside surfaces of the cabinet and hardboard for floor covering. Details show how to place insulation so it will be continuous, and how to install nailing bases so edges of wallboard can be fastened securely at corners.

Doors may be the hinged or sliding type. Hinged doors require more floor space. Stops for hinged doors are provided at top and bottom only; may be omitted at bottom. Catches to hold doors shut securely are placed on the upper stop.

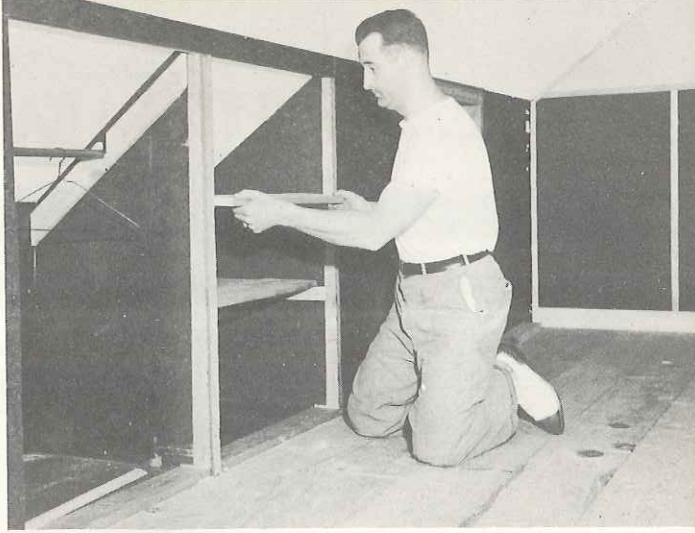
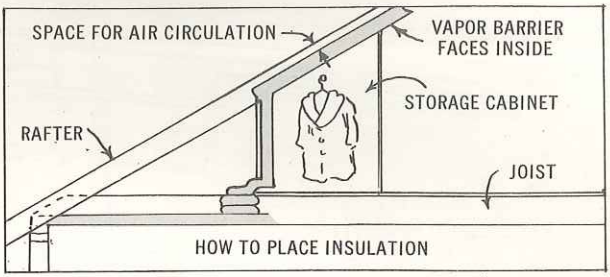
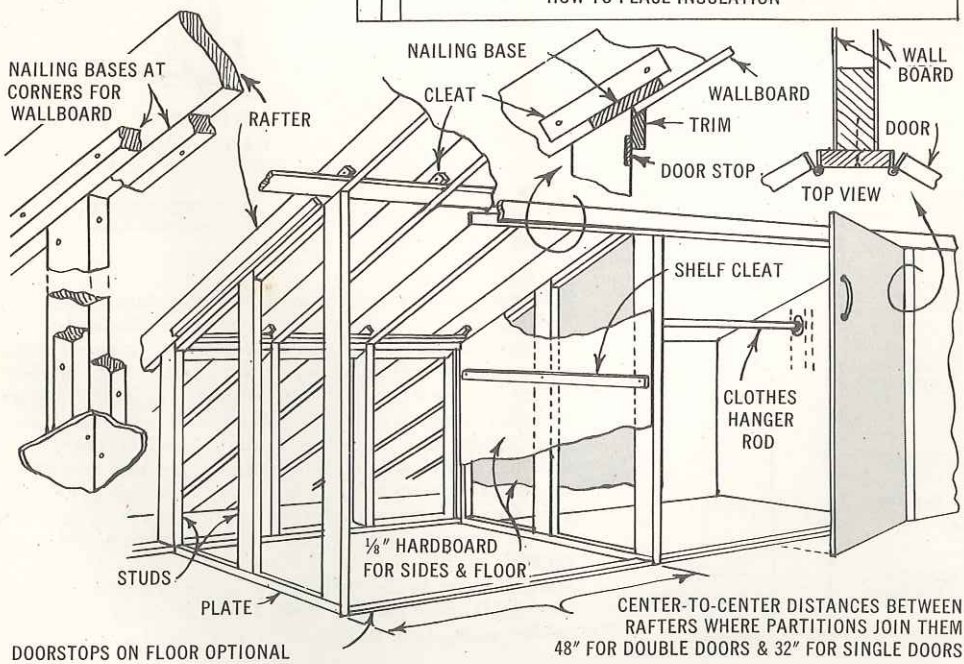


Photo courtesy of Insulite Division, Minnesota & Ontario Paper Co.

STORAGE CABINETS

in waste attic space





More STORAGE SPACE *in*

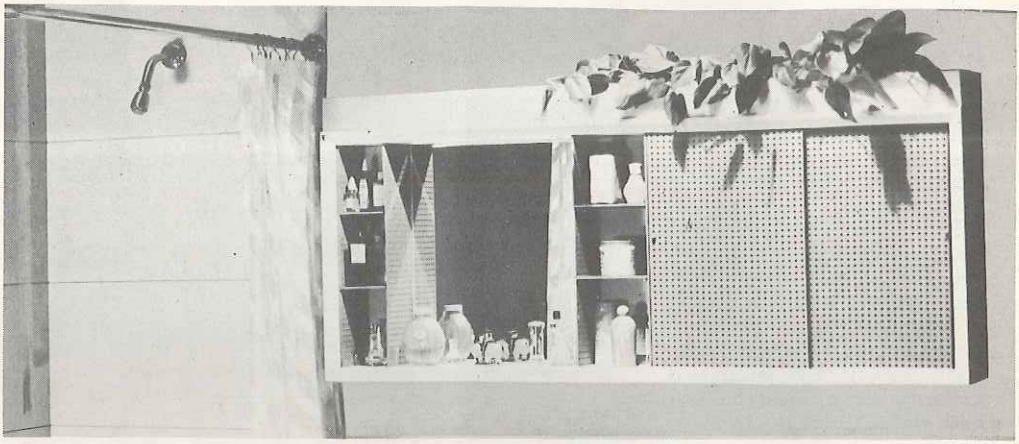
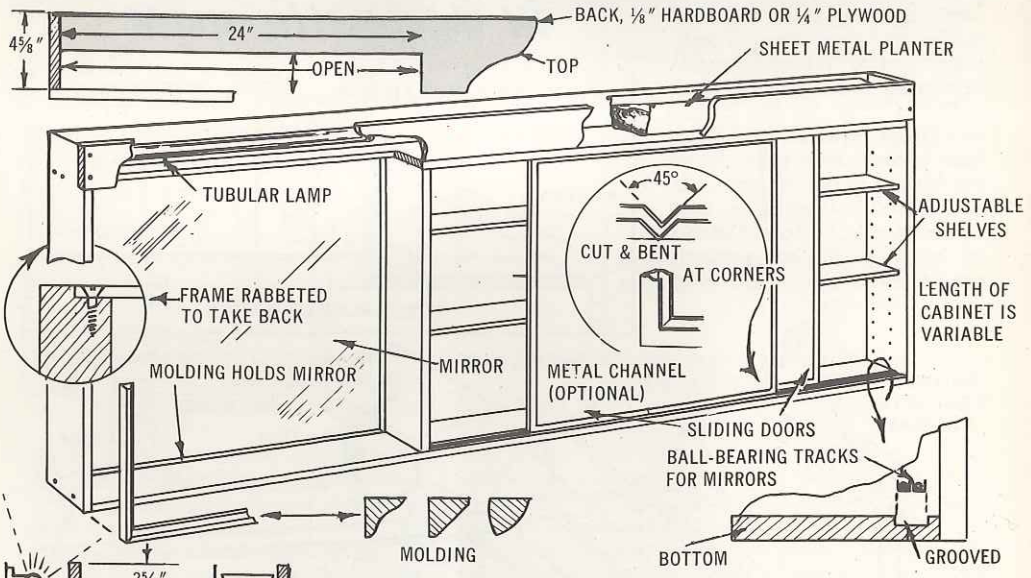
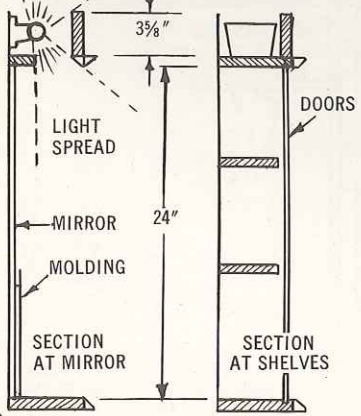


Photo courtesy of Crane Company





This roomy cabinet combines a mirror, lamp, shelving, sliding doors and a delightful planter. The sides, top and bottom are 1-in. stock. Details in drawing differ somewhat from those in photo. Long glass shelves require support of angle brackets at their center. Tubular lamp over mirror illuminates user's face and also lights wall above cabinet. Front of cabinet is finished neatly with suitable molding which is mitered at corners. Doors may be hardboard housed in grooves (see top of opposite page), or they may be mirrors. Latter should have metal channel edging either at bottom or all around, adhered with mastic. Mirrors should have ball-bearing tracks for easy operation. Use SKIL Saw and/or Saw Table to make dado and rabbet cuts. (see pages 30 and 31 for material list.)

BATH ROOMS

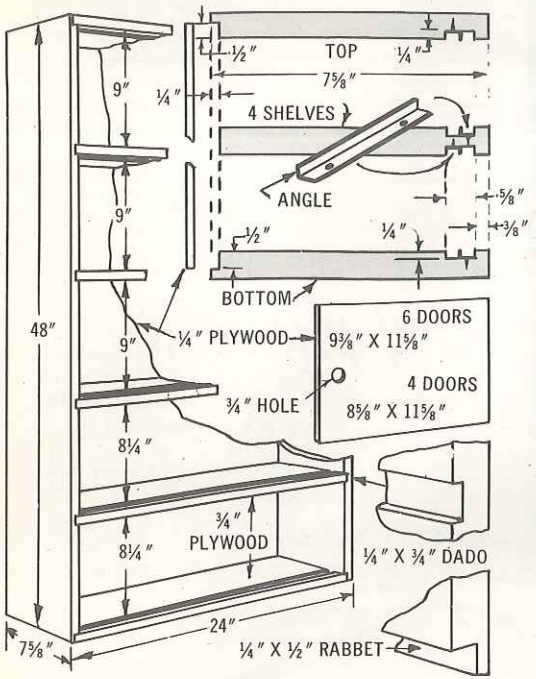
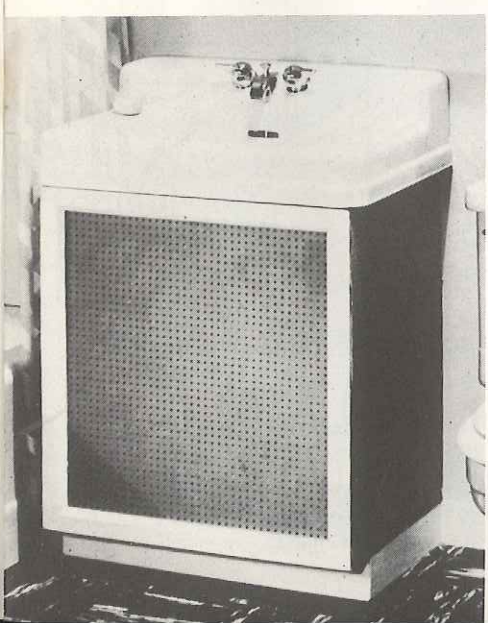


Photo courtesy of Douglas Plywood Association

Above: Made of ¼ and ¾-in. fir plywood, this cabinet utilizes vertical areas of waste wall space. Sides are dadoed for shelves, which are glued and nailed. Instead of narrow grooves for each sliding door, you can cut wider grooves and install lengths of angle or T-stock to form separate tracks. (See page 30 and 31 for material list.) Below: Open-back enclosure under a lavatory for storing soap and other bathroom supplies, is easy to make. A shelf having its center portion cut out to fit around the trap, can be added. Bottom must be similarly cut out if drain pipe extends through the floor. Frame of hinged door conceals front edges of the sides.



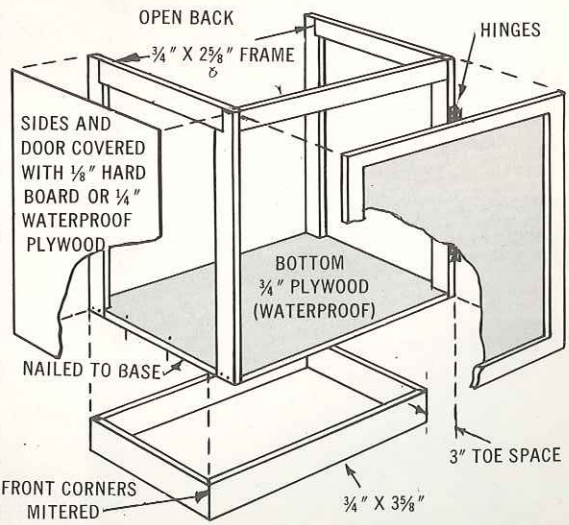
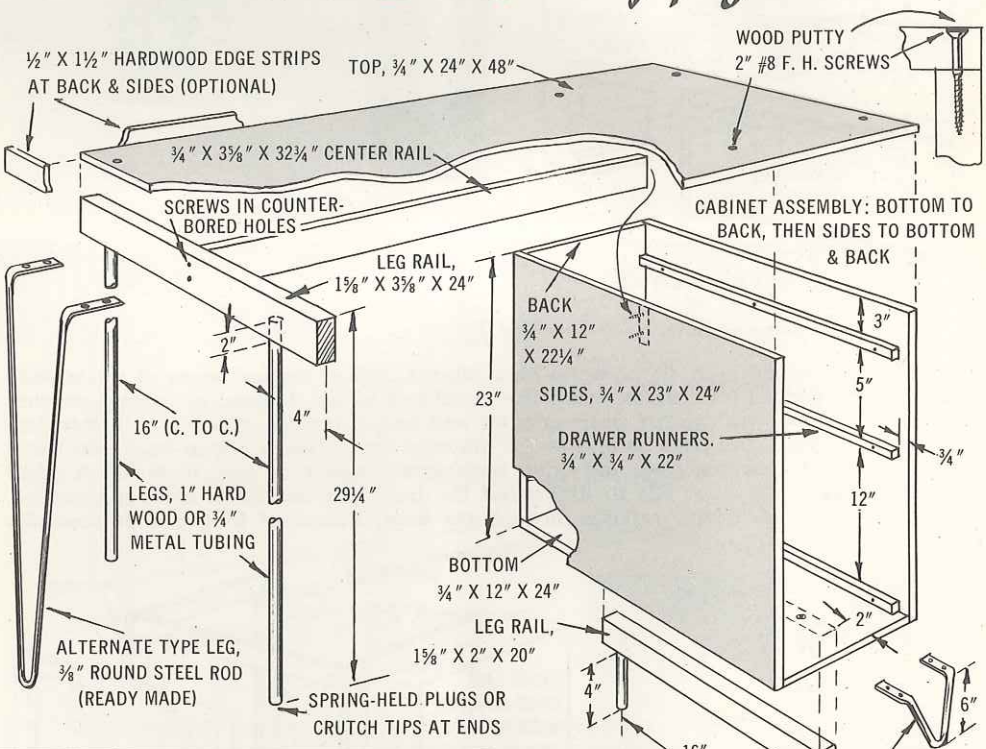
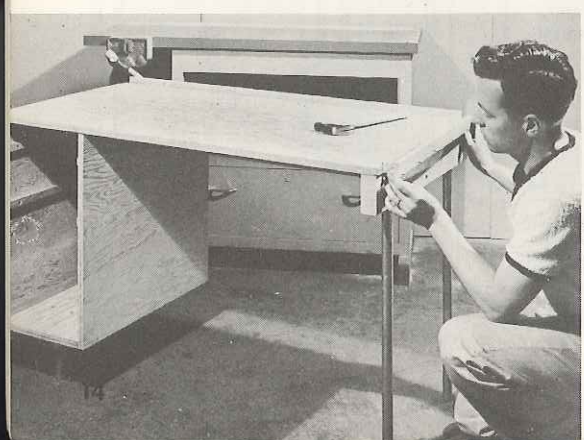


Photo courtesy of Crane Company

Stock lumber is used only for edge strips, rails, legs and drawer runners. First assemble drawer cabinet, including runners and leg rail; then other leg rail, center rail and cabinet, after which top is screwed on. You can use 6-d. finishing nails and glue to assemble cabinet and drawers but screw-fastening is stronger. You can substitute bent steel legs for tubular-metal or wooden legs. Drawer fronts come between cabinet sides and extend below drawer bottoms; runners serve as stops. Drawer height is 1/16 in. less than distances between runners. (See pages 30 and 31 for material list.)

3-drawer DESK of plywood

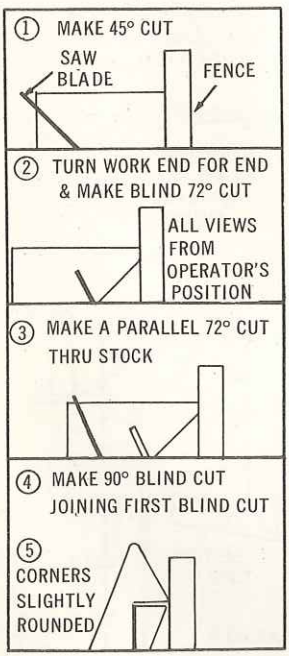


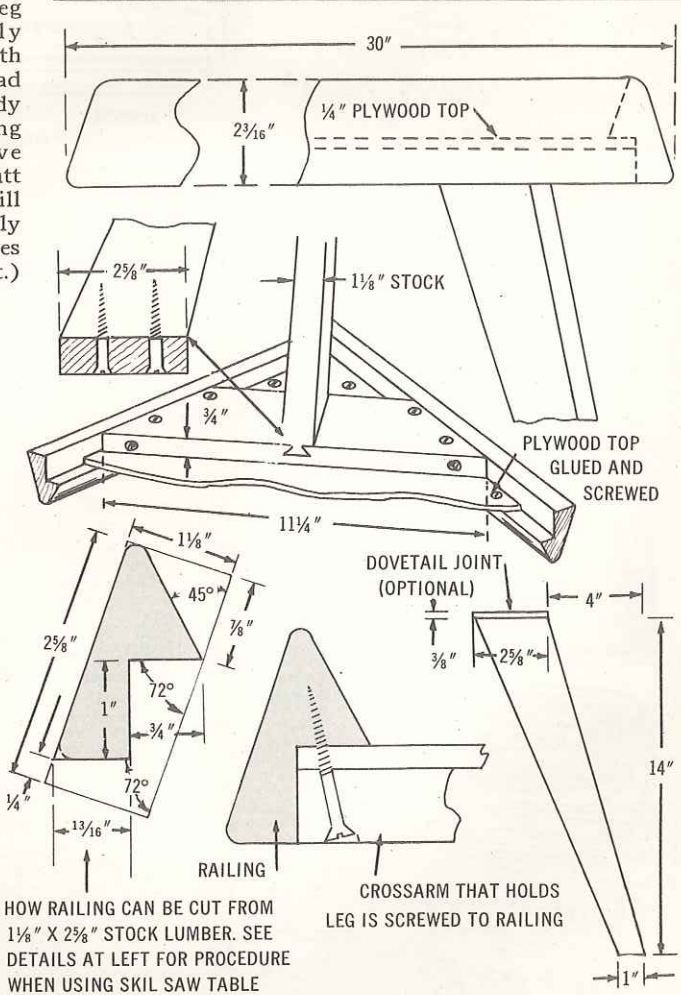


Photos courtesy of Douglas Plywood Association

Coffee Table

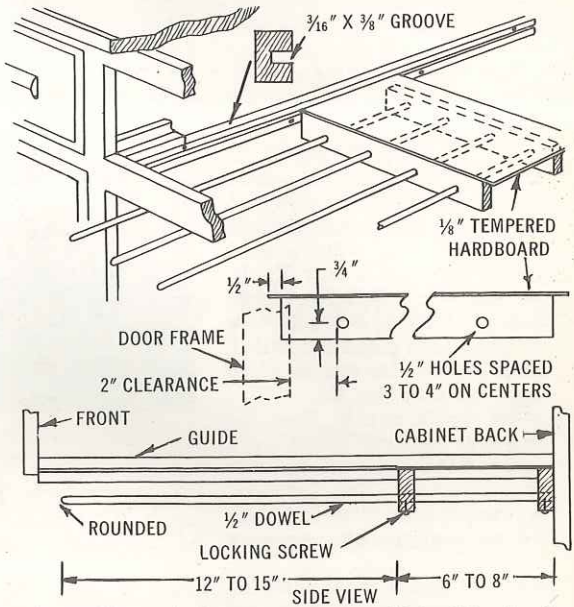
Light in weight despite its generous size, this coffee table has a top of ¼-in. plywood. The rest is hardwood. You can cut the railing with a 6-in. SKIL Saw on a Saw Table, by following the steps shown below. Railing corners are mitered, then glued and nailed, after which the top is glued and screwed to the railing from underneath. The leg crossarms are similarly screwed to the railing with longer screws. Use flat-head screws, drilling pilot and body holes, and counter-sinking them. The legs may have dovetail joints, although butt joints, fitting accurately will be relatively strong when only glued and screwed. (See pages 30 and 31 for material list.)





HOW RAILING CAN BE CUT FROM 1⅛" X 2⅝" STOCK LUMBER. SEE DETAILS AT LEFT FOR PROCEDURE WHEN USING SKIL SAW TABLE

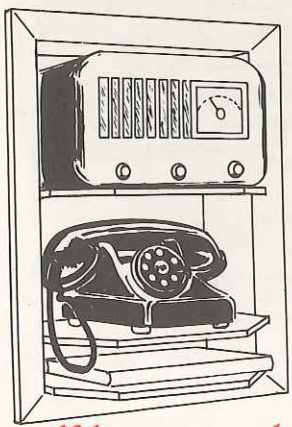
KITCHEN

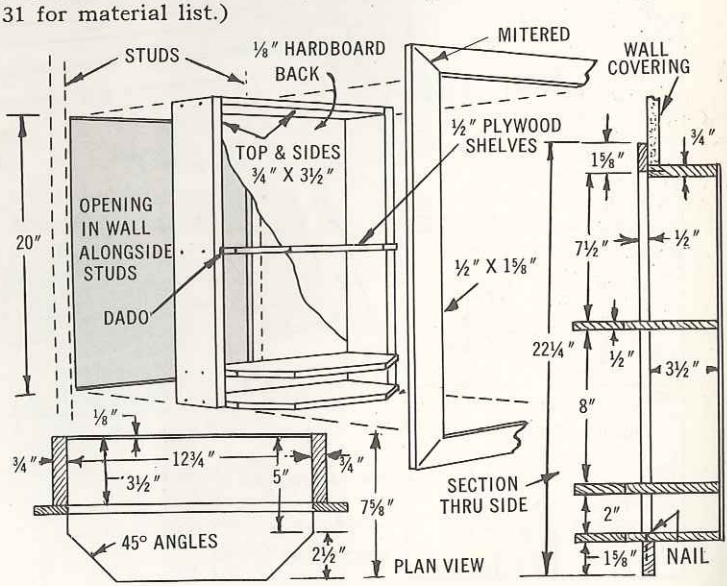


Sliding towel rack in cabinet

Above: Towel rack consists of 3 or 4 dowels set into a built-up crossarm which slides freely in grooved guide rails or metal channels. The dowels are located to clear the door frame and are locked in place to the crossarm with screws. (Waterproof the dowels with spar varnish to prevent warping.) Crossarm consists of piece of tempered hardboard and two cleats of 1 by 2 stock bored to receive the dowels.

Below: It's easy to make a pocket cut in a wall with your SKIL Saw to accommodate a built-in shelf that holds a small radio, a telephone and a telephone directory. An electric outlet can be provided at the top so the radio cord will not show. Unit can be held in position securely by means of four flat-head screws driven through the sides into adjacent studs. (See pages 30 and 31 for material list.)



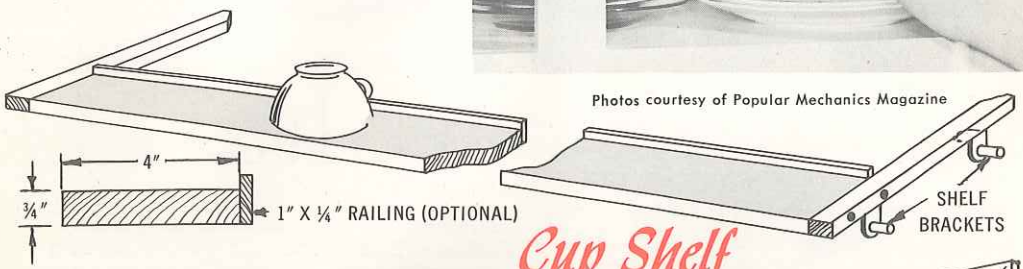


Phone and radio niche

AIDS

For holding cups and tumblers safely and conveniently in a wall cabinet, these narrow shelves which are located between regular shelves, will utilize the waste space above stacks of plates. Cleats, as long as the shelves are wide, are screwed onto the ends to rest on shelf brackets.

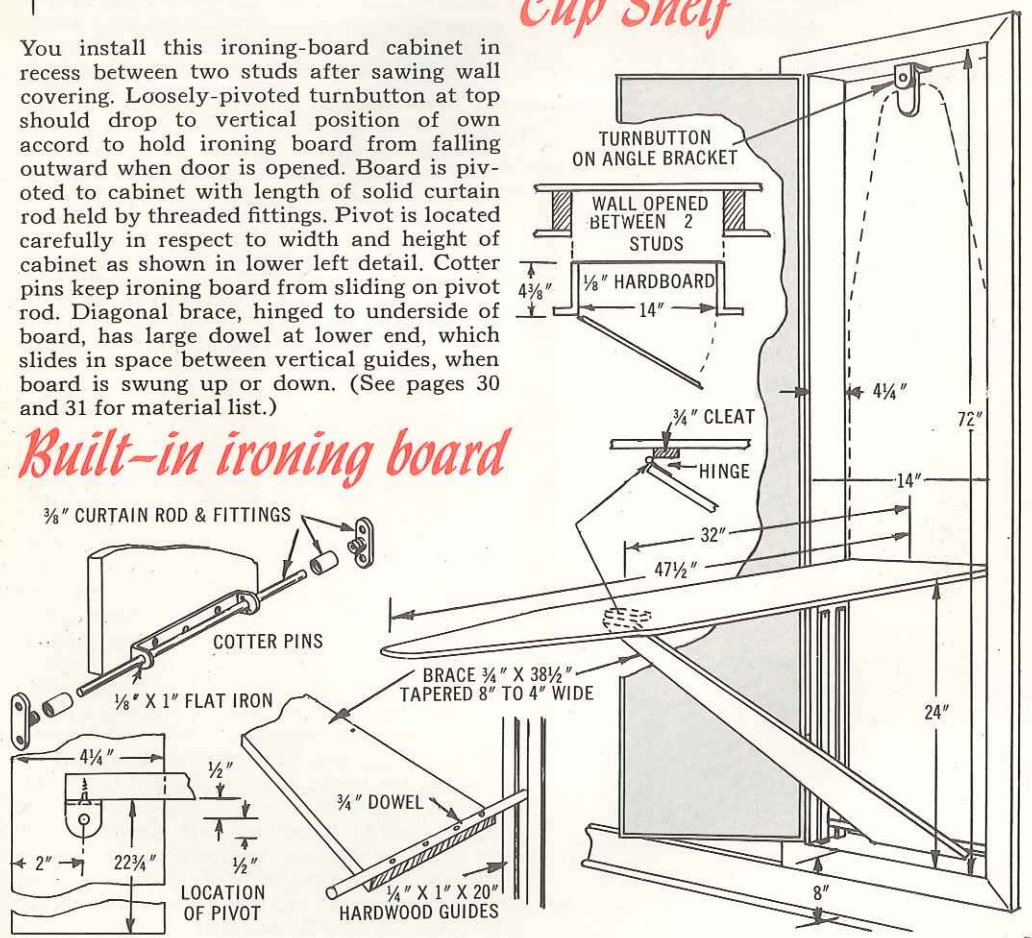
Photos courtesy of Popular Mechanics Magazine



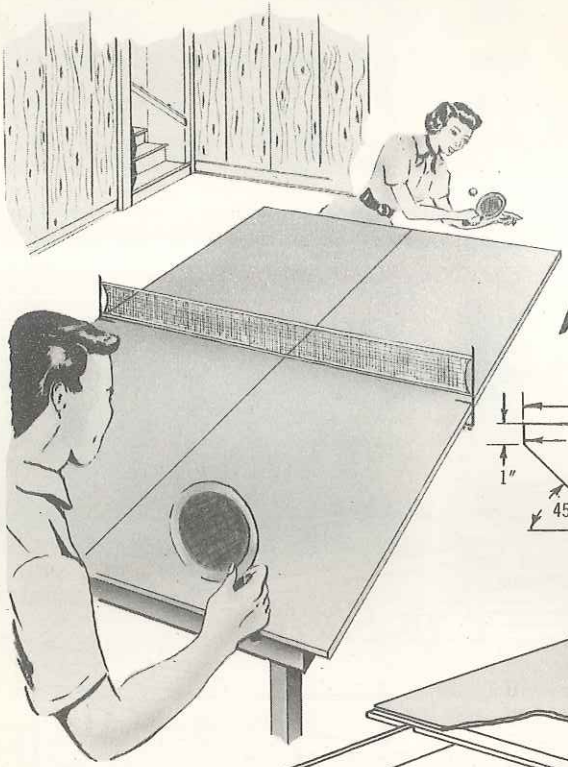
Cup Shelf

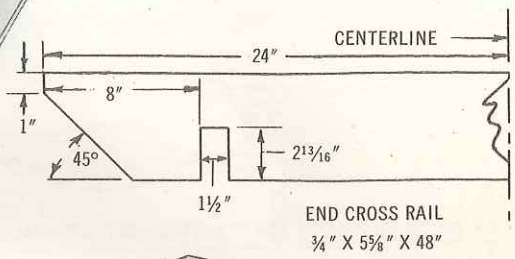
You install this ironing-board cabinet in recess between two studs after sawing wall covering. Loosely-pivoted turnbutton at top should drop to vertical position of own accord to hold ironing board from falling outward when door is opened. Board is pivoted to cabinet with length of solid curtain rod held by threaded fittings. Pivot is located carefully in respect to width and height of cabinet as shown in lower left detail. Cotter pins keep ironing board from sliding on pivot rod. Diagonal brace, hinged to underside of board, has large dowel at lower end, which slides in space between vertical guides, when board is swung up or down. (See pages 30 and 31 for material list.)

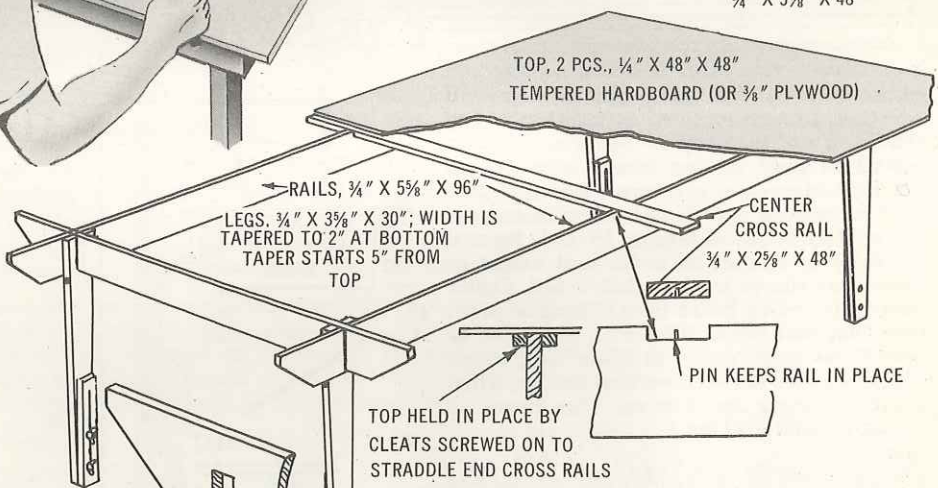
Built-in ironing board

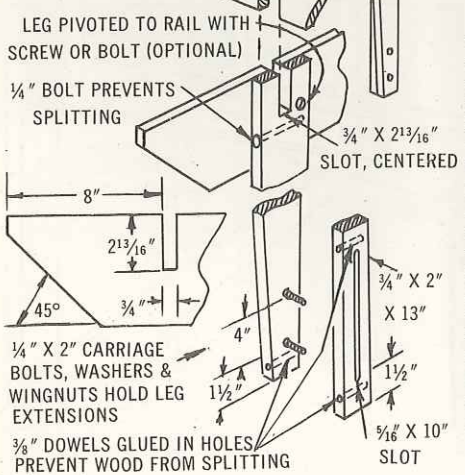


Take-apart TENNIS TABLE has adjustable legs

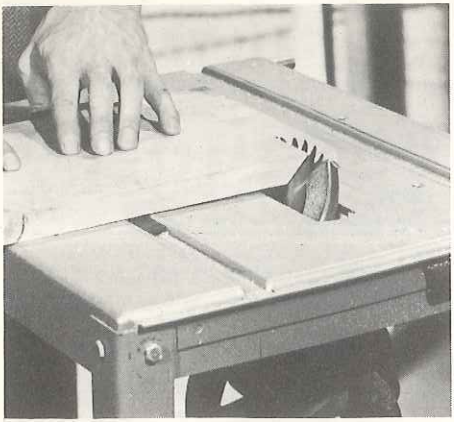








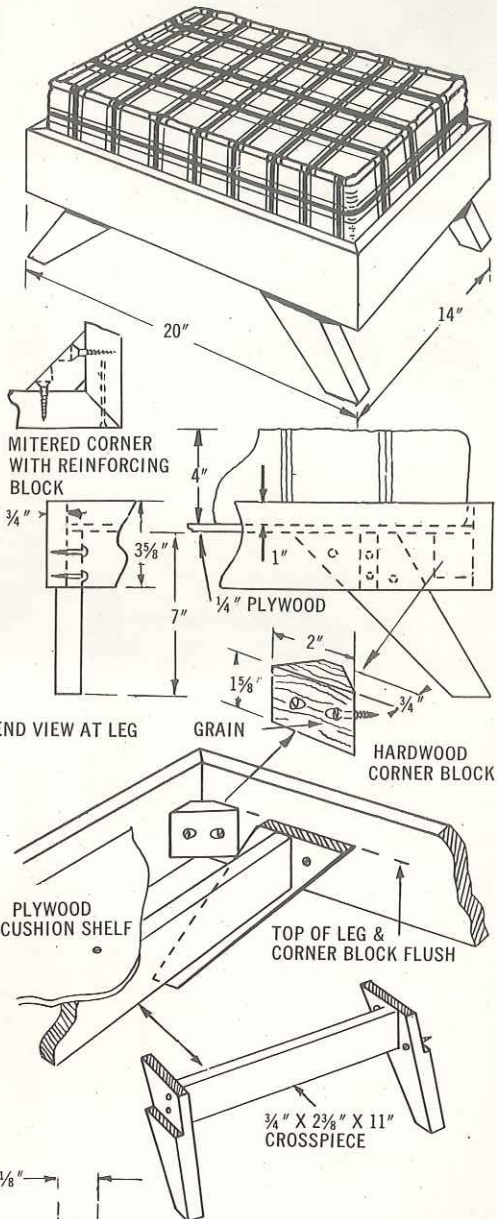
This tennis table can be adjusted level on a sloping floor by means of leg extensions that can be brought out 6 inches. Another advantage is that the table can be taken apart in a few moments for moving or storage. The legs may be pivoted to the rails to keep them together when stored. A bolt just below the leg slot prevents the leg from splitting. Dowels glued in holes drilled across the ends of the leg extensions serve the same purpose. The top may be a single panel or two half panels joining at the center crossrail. While this size table is convenient for home use, the frame can be enlarged to accommodate a regulation 5 by 9-ft. top, in which case you use two 54 by 60-in. half panels. A flat, dark-green finish gives good contrast and causes minimum eye fatigue. A ¾-in. stripe is painted along the edges and along the center lengthwise. (See pages 30 and 31 for material list.)

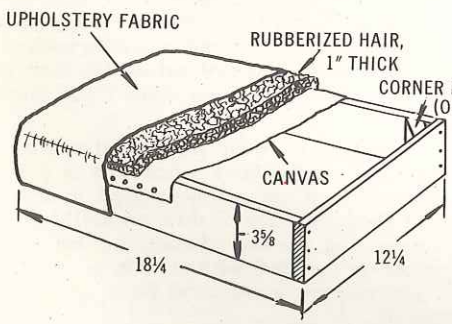


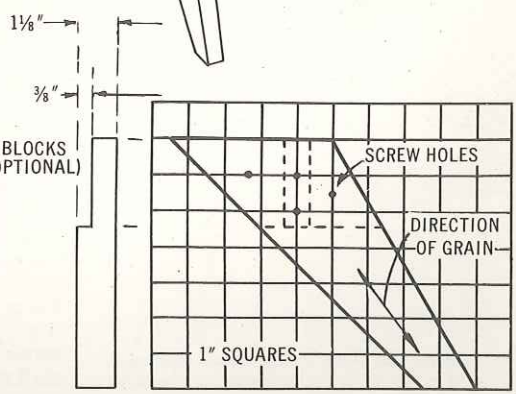
FOOTSTOOL

Hardwood such as birch or maple is best for making this footstool. The cushion may be a readymade one of suitable size. You can make a resilient, lightweight cushion of rubberized hair, using four 1-in. thicknesses. Wrap this assembly in muslin and slip it into a fabric covering. This can be removed instantly for cleaning if provided with a slide fastener. A substitute for a cushion is the upholstered wood frame shown below.

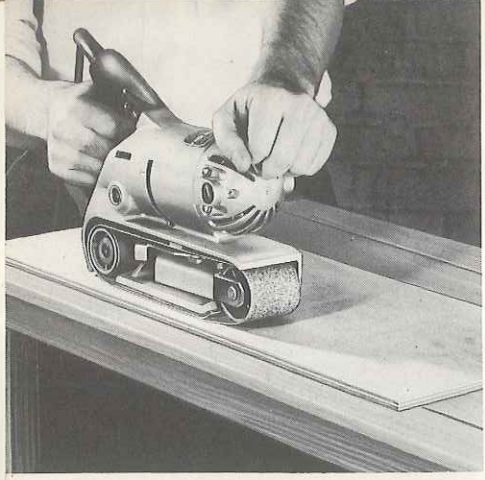
Corners of the stool frame should be mitered for best appearance, which is a simple operation on a SKIL Saw. You fasten the mitered corners with glue and finishing nails. For maximum rigidity, install hardwood reinforcing blocks in the corners, fastening with glue and screws. Tops of the corner blocks should come flush with tops of the legs so both will support the plywood cushion shelf. The legs are recessed to come partly under the frame to take weight. Crosspieces between the legs as shown are optional, but if used, they must be fitted carefully. (See pages 30 and 31 for material list.)



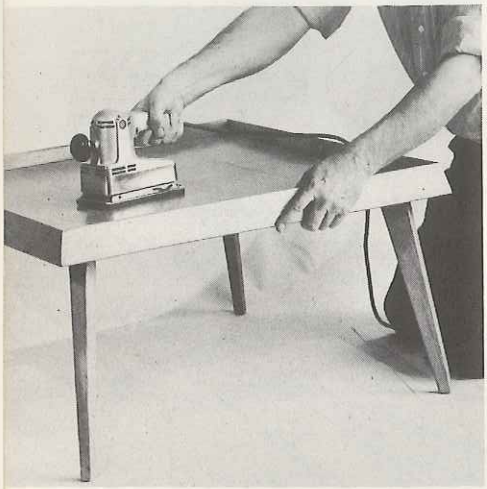




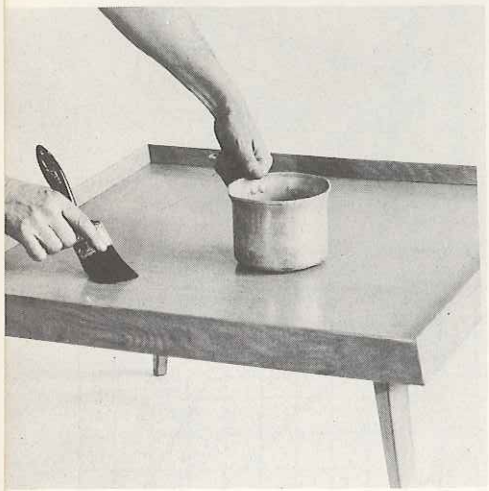
Refinishing Furniture



For sanding of rough stock or removal of paint and varnish, use SKIL Belt Sander with coarse or medium sanding belt.



SKIL Orbital Sander, with fine sanding, paper, is the ideal tool to ready wood surfaces for paint or stains.



After fine sanding, seal wood surface before staining or painting. Wood is now ready for varnishing or lacquering.

Removing old enamel or varnish from flat or convex surfaces of furniture is a simple job for a SKIL sander of either the belt or the orbital type. The former is preferable generally for fast, heavy-duty work on large surfaces.

Sanding off enamel or varnish is done with a type-D sanding belt, medium or coarse as may be necessary. Work across the grain of the wood until practically all traces of the enamel or varnish have disappeared. Then change to a type-A sanding belt, medium or fine. Now you work in the same direction as the wood grain, which should remove all of the cross scratches previously produced, and result in a satin-smooth surface.

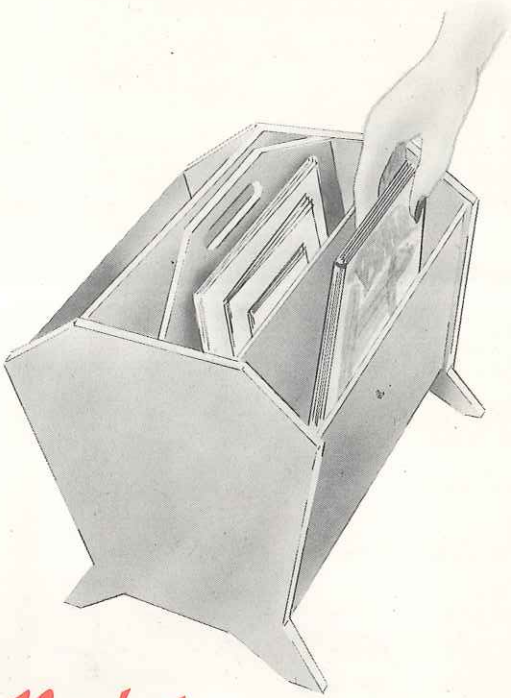
If the material being sanded is plywood, only a thin surface layer can be removed. If it is solid lumber, much more can be removed, often as much as necessary to eliminate most deep dents and scratches, which otherwise require filling. This is done with wood putty or stick shellac. The former can be stained but the latter must be carefully selected for the right color and shade. Scrape down burned spots to the bare wood to completely eliminate the charred portions. You apply stick shellac with the aid of a hot metal blade. Details of the procedure can be obtained from furniture-repair and refinishing books. Filled spots, when dry, require careful sanding to bring them perfectly flush with the surrounding surface.

Apply wood filler and stain if needed, prior to varnishing or lacquering. When dry, sand this lightly by hand with 6/0 or 7/0 sandpaper. Some lacquer finishes are highly resistant to staining from alcohol and other liquids. Stain that remains in the wood from a previous finish, may bleed through enamel applied subsequently, and therefore should be covered with a suitable sealer. A hard-wearing, natural finish that will darken gradually, can be produced by applying several coats of hot linseed oil, allowing each to soak into the wood and dry before the next is applied. This finish will not stain from most liquids.

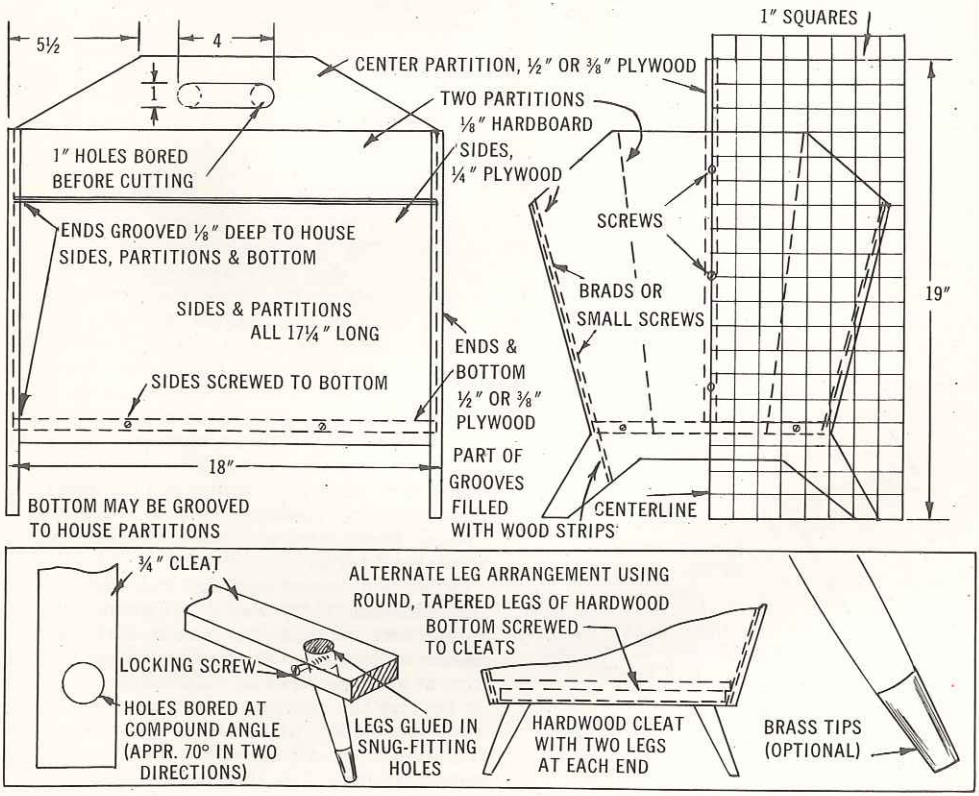
It is advisable to wear a respirator when power sanding, particularly when this is done frequently or for an appreciable period, in order to prevent the inhalation of dust normally produced by sanding. On carved and other surfaces that cannot be sanded with a belt or orbital sander, you can use a chemical paint and varnish remover.

Your magazines are always conveniently at hand in this four-compartment basket. The ends also serve as legs. Sides, partitions and bottom are glued into ⅛-in. deep grooves cut in the ends by means of a SKIL Saw Table set-up. Flat-head, No. 7 screws, 1¼ in. long, are driven through the ends into the center partition and into the bottom. Drill pilot holes and sink the screws just below the surface for concealment with wood putty. Small screws driven through the ends into the sides also add strength. Exposed grooves can be concealed with wood strips glued in.

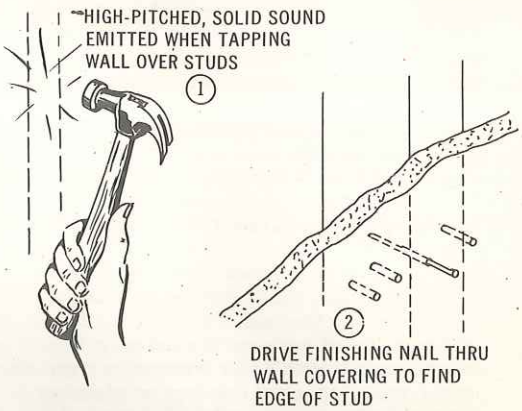
If you prefer separate turned legs, these often can be obtained at dealers of unfinished furniture. Then ends and sides extend beyond the bottom to conceal cleats carrying the legs. Upper ends of the legs must be of uniform diameter so they will fit snugly into holes bored at a compound angle to give the legs a pleasing slope. (See pages 30 and 31 for material list.)



Magazine Basket



Installing an

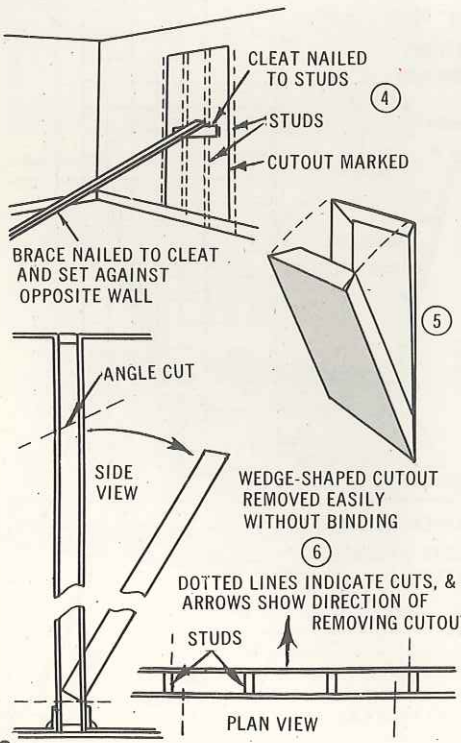


First determine the door location where the wall does not contain interfering pipes or ducts. Then find two studs that flank this area by tapping the wall as in Fig. 1. Next, find the inside edge of the flanking studs exactly by driving finishing nails as in Fig. 2. Mark this position on the wall for sawing. Also make a level, horizontal mark 5½ in. higher than the height of the door. Then apply a brace on each side of the wall portion to be removed, Fig. 4, to hold it in place after cutting, until you remove it.

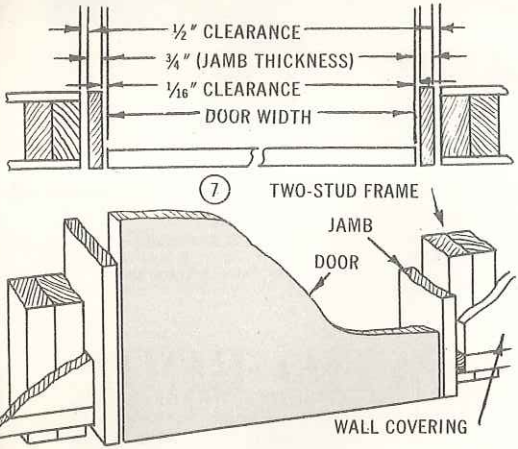
SAW THE WALL

You can remove a portion of the wall intact without the mess of breaking off plaster. To do this, make the cutout smaller on one side, approaching the idea of a wedge as shown in Fig. 5. Fig. 6 shows where the cuts are made so that the cutout can be removed without binding. First saw along the vertical marks through one side of the wall, Fig. 3. Use an abrasive blade for cutting metal plaster lath. Remove the baseboard and make a horizontal cut 3 or 4 in. above floor level, across intervening studs. To sever them completely may require cutting from both sides of the wall. This entails careful measuring and drilling of holes to determine the exact cutting position to make both cuts merge. These cuts are made at right angles to the wall surface.

Next, you make two vertical cuts on the opposite side of the wall from the previously made vertical cuts, but about 2 in. farther inside the cutout portion. Then make the top cut, at an angle. As this cut through the studs is beyond the capacity of the average power saw, you make cut from one side and finish it through the studs with a hand saw. The cutout portion can then be removed.



INTERIOR DOORWAY



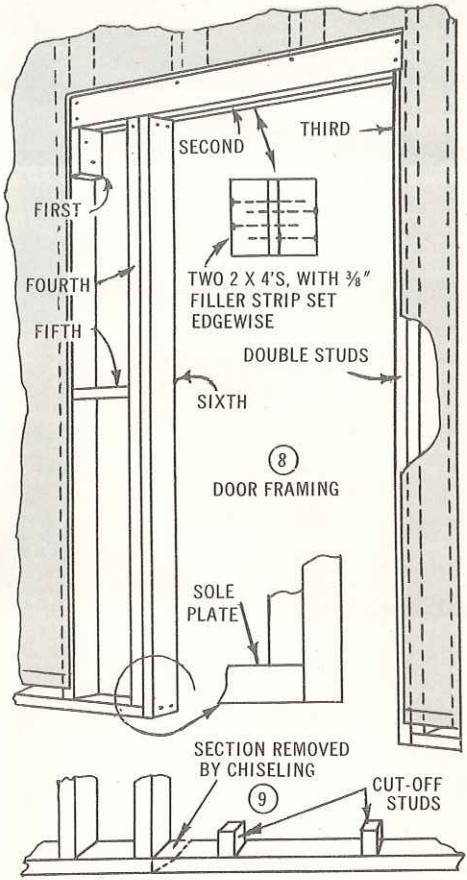
INSTALL DOOR JAMBS

Door jambs come in widths to suit various thickness of wall coverings. The crosspiece is sawed to correct width for the door before nailing the sides to it. Distance between the latter should be ⅛ in. more than the door width. Cut off the "horns" (extending top ends) so the lower surface of the crosspiece will come above the finish floor a distance equal to door height plus ½ in. for clearance.

Use two braces as in Fig. 10 to hold the sides at proper spacing. Insert pairs of shingles and push them together under the jambs to fill the clearance and provide a solid nailing base. Keep the sides plumb while making these adjustments. Drive 10-d. finishing nails through the jambs and shingles, into the framing. Then saw off the projecting ends of shingles, apply door trim and hang the door.

DOOR FRAMING

Cut off the sloping ends of severed studs at the top so the header of the framing can be installed level. Also cut off wall covering that projects beyond studs into the opening. The inside width of a framed door opening varies with the width of the door. See Fig. 7. The height of the opening above the finish floor is about 1¾ in. more than the height of the door. Fig. 8 shows the sequence of installing the members of a door frame in an opened wall. While fitting the studs of the frame, sever part of the sole plate extending in the doorway by chiseling, Fig. 9, and pry the cut portion loose. Patch the recess to come flush with the floor and restore wall covering as necessary.



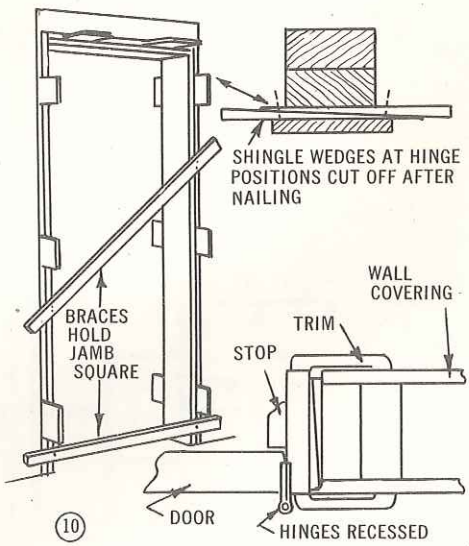
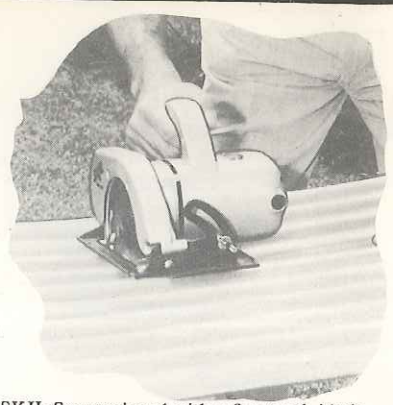


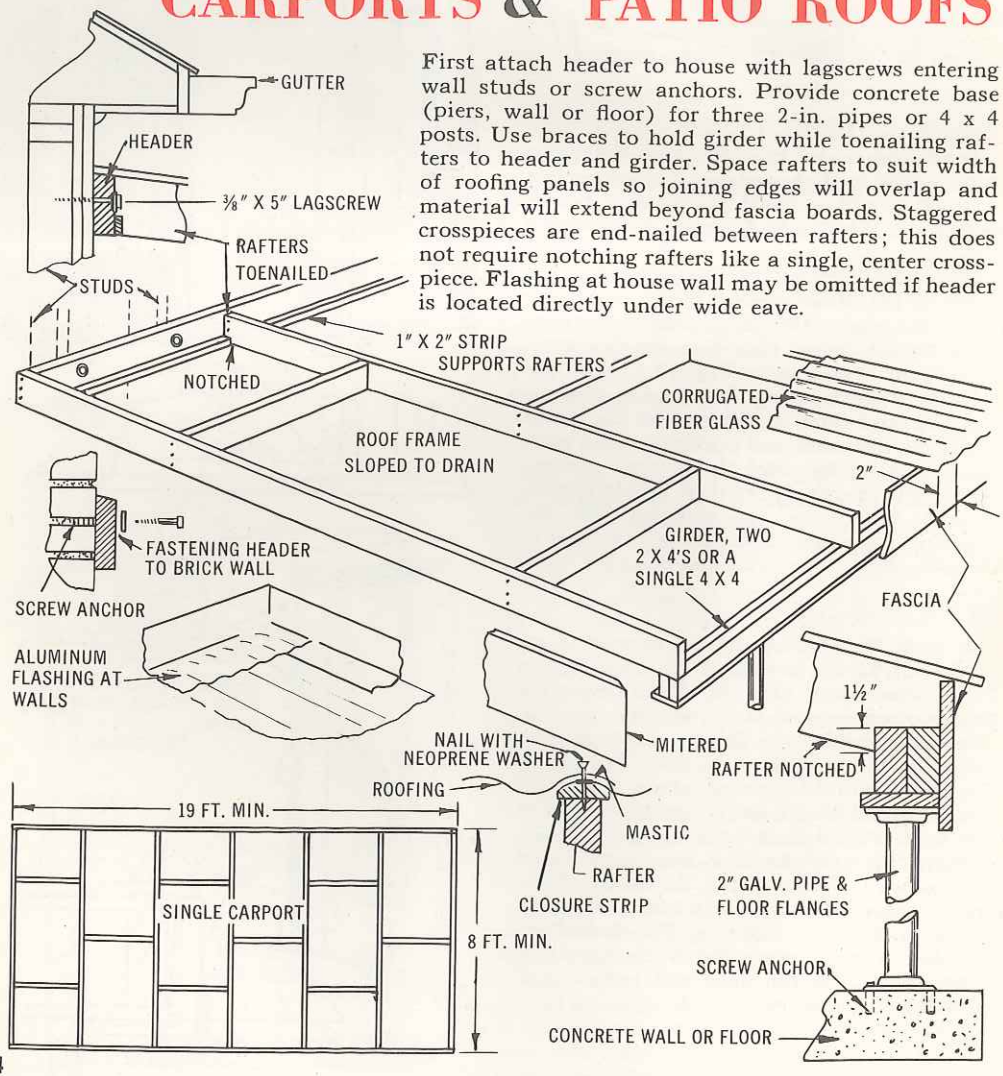
Photo courtesy of Filon Plastics Corp.



A SKIL Saw equipped with a fine tooth blade makes short work in cutting through plastic.

CARPORTS & PATIO ROOFS

First attach header to house with lagscrews entering wall studs or screw anchors. Provide concrete base (piers, wall or floor) for three 2-in. pipes or 4 x 4 posts. Use braces to hold girder while toenailing rafters to header and girder. Space rafters to suit width of roofing panels so joining edges will overlap and material will extend beyond fascia boards. Staggered crosspieces are end-nailed between rafters; this does not require notching rafters like a single, center crosspiece. Flashing at house wall may be omitted if header is located directly under wide eave.



Fiber-glass SCREEN *combined with* PLANTER

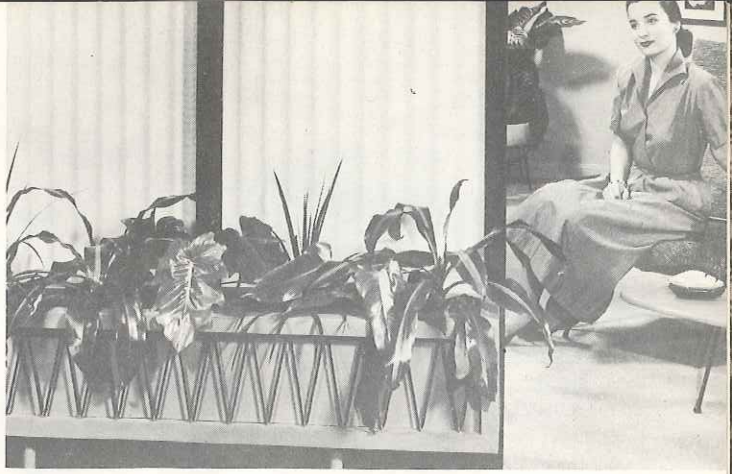
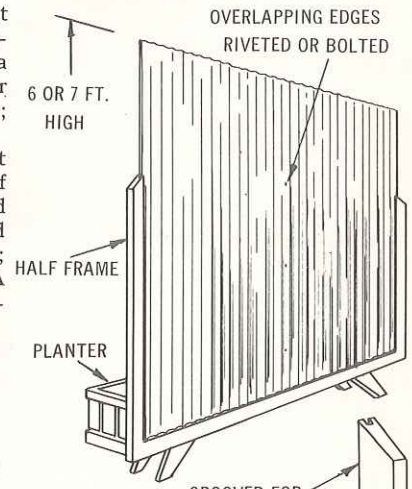
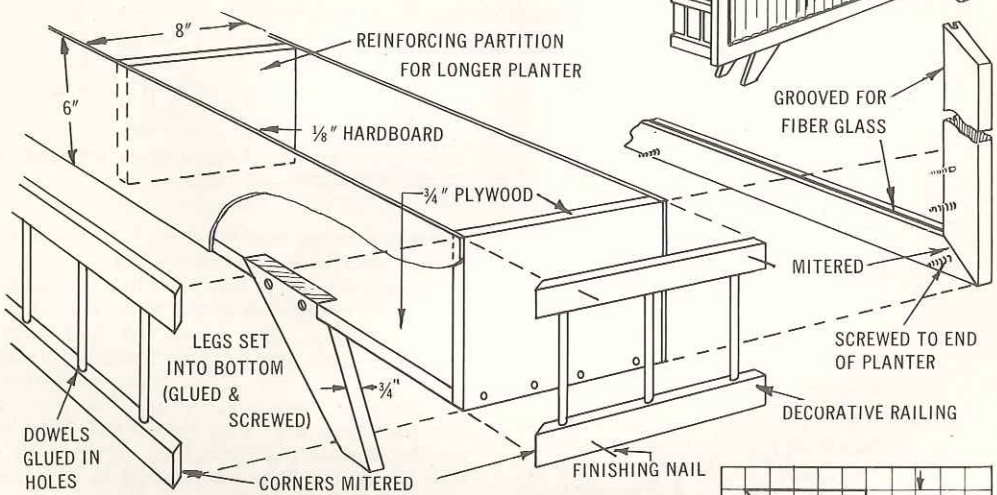


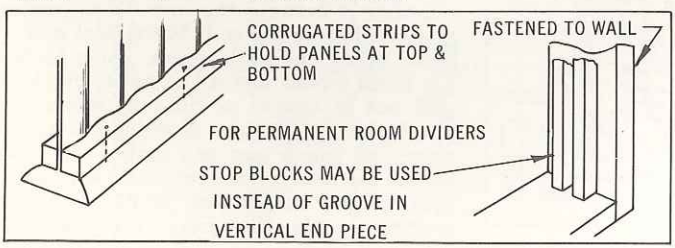
Photo courtesy of L. O. F. Glass Fibers Co.

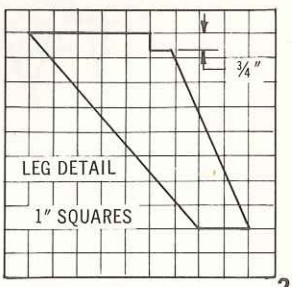
You can combine a portable screen or a permanent room divider of corrugated fiber glass with an attractive planter. Besides serving as a draft shield such a screen also is translucent. Tough, shatterproof fiber glass comes in plain or colored sheets 26 to 42 in. wide; is easy to saw, drill and sand with SKIL tools.

A portable screen may be completely framed or set in a half frame (right). Overlapping vertical edges of corrugated fiber glass may be inconspicuously riveted or bolted. Lower details show corrugated strips to hold bottom and top of room dividers to floor and ceiling; also uprights at vertical edges for added rigidity. A planter should be equipped with a removable, watertight liner.

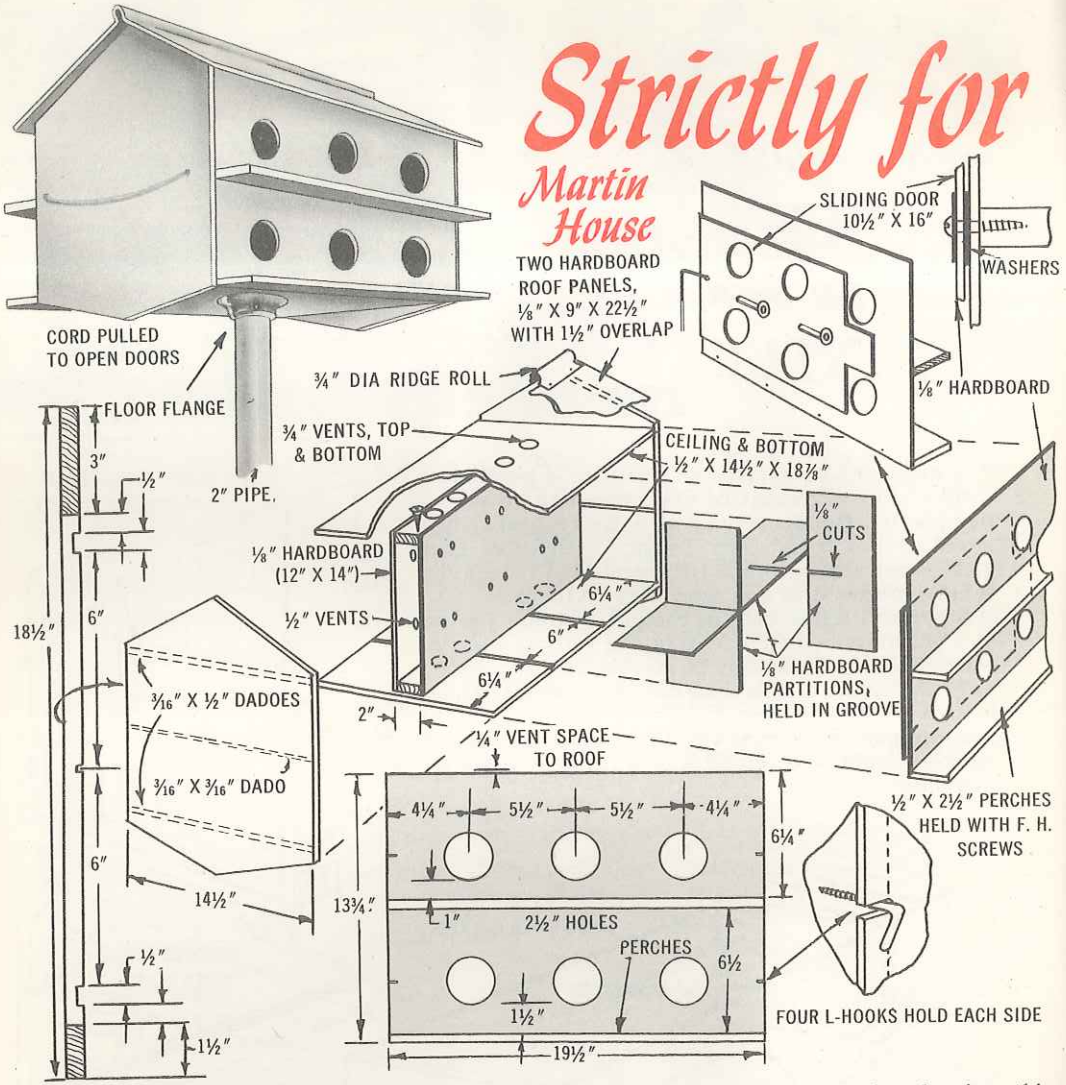




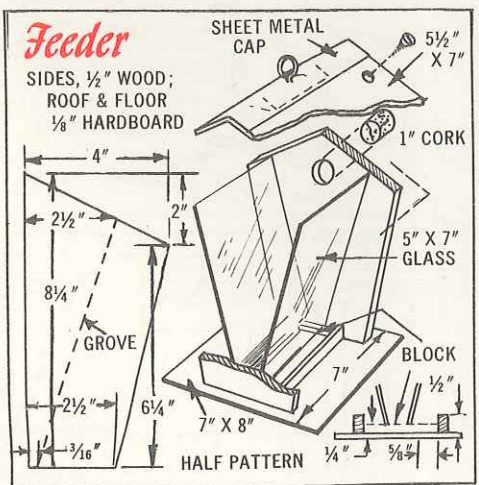




Strictly for Martin House

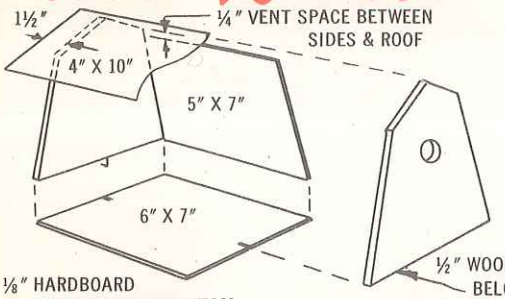


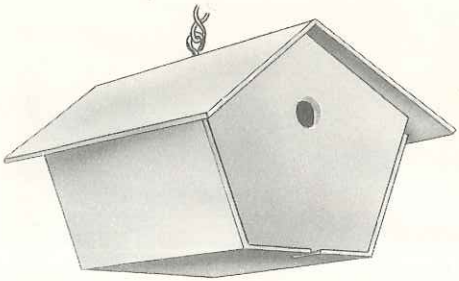
Feeder



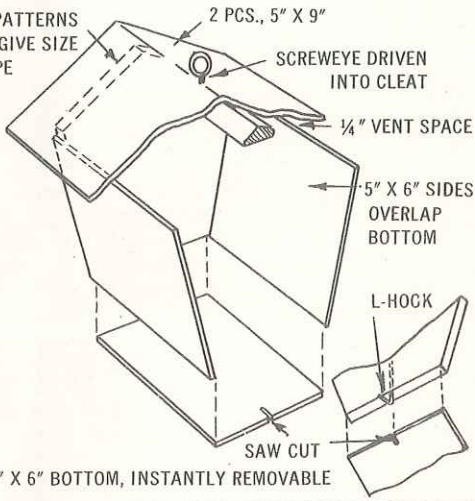
Besides being easy to open for cleaning, this 12-nest martin house has sliding doors to keep out sparrows. After fall cleaning the doors are closed, to be opened again in spring when the martins arrive. The doors are slid open by pulling a cord, using a pole fitted with a hook. To build, use 5-ply, ½-in. waterproof plywood for the ends, floor and ceiling. The roof, sides and partitions are ⅛-in. hardboard. First make up the double partition that serves as a vent flue. Screw the floor and ceiling to it while assembling it between the ends. Glue (waterproof glue) and screw the ends to the floor and ceiling. Next, apply the roof panels, using ½ or ⅝-in. f.h. brass screws instead of nails, which tend to pull out in course of time. Separate the roof panels for ventilation, covering the slit with a ridge roll which you can make. The nest partitions are held in grooves, and have ⅛-in. sawcuts halfway across their width so they will fit together neatly. (See page 31 for material list.)

the Birds



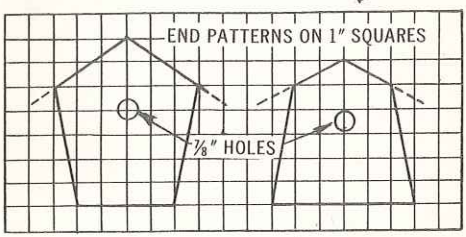


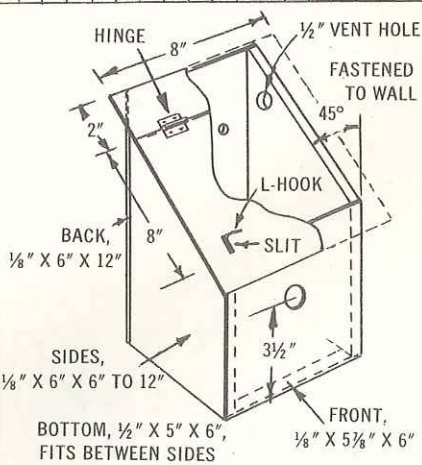
Wren House



The grain feeder consists of two pieces of glass held in grooves cut in the sides. The glass shows how much grain is left in the feeder at a glance. Little spacing blocks keep the glass ¼ in. above the floor so that the feed is automatically dispensed into a trough formed by two wood strips held onto the bottom with screws. The feeder is filled through a 1-in. hole, using a funnel, after which the hole is corked. A sheet-metal ridge cap helps to keep the grain dry. Roof and bottom are screwed to the sides.

The two hanging wren houses are similar in construction. The roof, sides and bottom are ⅛-in. hardboard, and the ends are ½-in. wood or waterproof plywood. Use f.h. brass screws for assembling. The bottom panels are instantly removable for cleaning, The wren house shown at the lower right, which is designed for rigid attachment to a wall, has a sloping, hinged roof, which facilitates cleaning. Requirements of other kinds of bird houses are given in the table below.

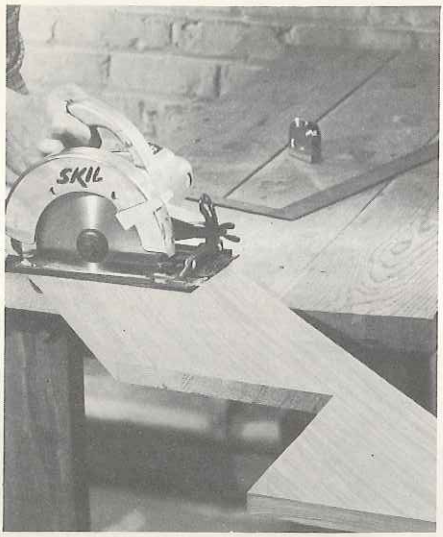


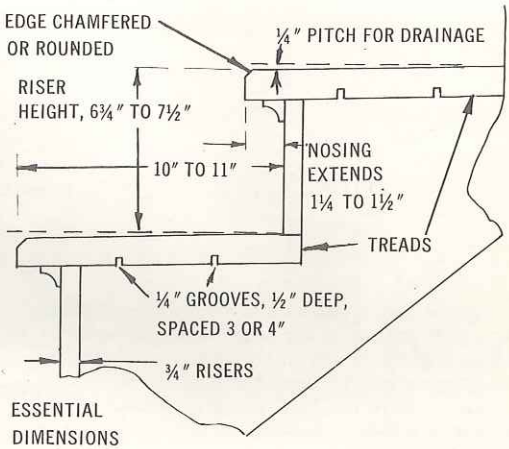


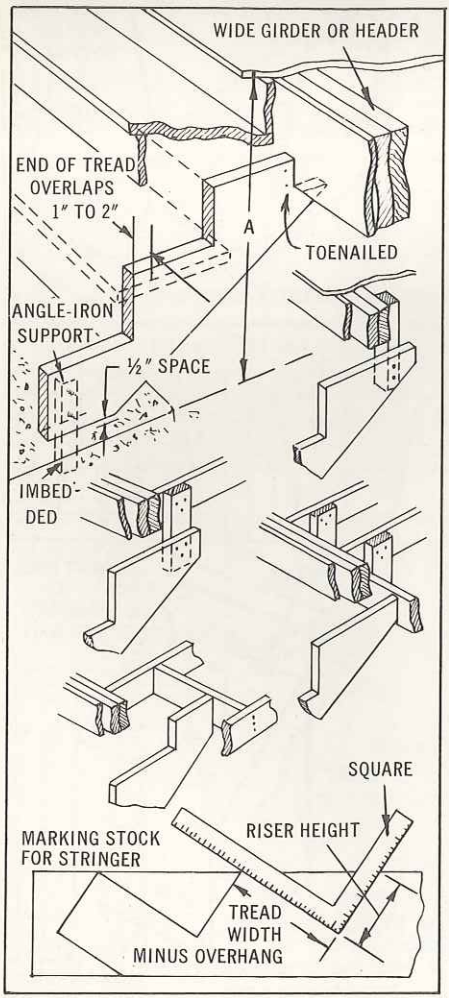
BIRD HOUSE DIMENSIONS

Kind of Bird	Floor Size	Cavity Depth	Entrance Diameter	Entrance Above Floor	Height Above Ground (Ft.)
Bluebird	5 x 5	8	1½	6	5—10
Chickadee	4 x 4	8—10	1	8	6—15
Flicker	7 x 7	16—18	2½	16	6—20
House Finch	6 x 6	6	2	4	8—12
Martin	6 x 6	6	2½	1	15—20
Nuthatch	4 x 4	8—10	1¼	8	12—20
Phoebe	6 x 6	6	2 adjacent sides open		8—12
Robin	6 x 8	8	2 adjacent sides open		6—15
Screech Owl	8 x 8	12—15	3	12	10—30
Song Sparrow	6 x 6	6	3 sides open		2—4
Swallow (barn)	6 x 6	6	2 adjacent sides open		8—12
Swallow (tree)	5 x 5	6	1½	1—6	10—15
Woodpecker	6 x 6	12—15	1½-2	12	12—20
Woodpecker (downy)	4 x 4	8—10	1¼	8	6—20
Wren	4 x 4	6—8	⅞	1—6	6—10

Replacing PORCH STEPS





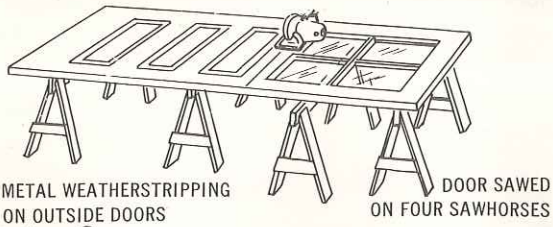


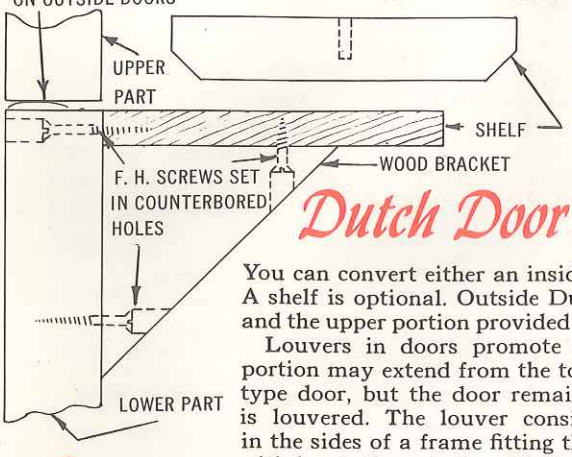
Where old steps to be replaced were found satisfactory in angle and dimensions, you simply trace the outline of stringers on new stock. Standard tread and riser dimensions are given above. Porch-step treads should be 1⅛ to 1⅝ in. thick, and sloped slightly for drainage. They may be grooved underneath to prevent warping, or they may consist of separate boards spaced for drainage and air circulation. Methods of fastening stringers to porch framing are shown at the left. Space between lower ends of stringers and base or sidewalk helps to prevent rot.

How To Build New Steps

To alter the angle or dimensions of steps, or to build new ones, you proceed as follows: Divide vertical distance A (upper detail at left) by 7. The number closest to the usual decimal result of this division, is the number of risers. Exact riser height is found by dividing distance A by the number of risers. To mark stock for sawing stringers, use a carpenter's square as in lower detail so distances from edge of wood to corner of square are equal to tread width (minus overhang of nosing), and riser height. Distance from cuts in stringer to uncut edge should not be less than 3½ in. Cut off the end of stringer parallel to the first tread, making length of bottom riser shorter than others by amount of tread thickness. Upper ends of stringers are cut to fit the porch framing.

2 DOOR CONVERSIONS



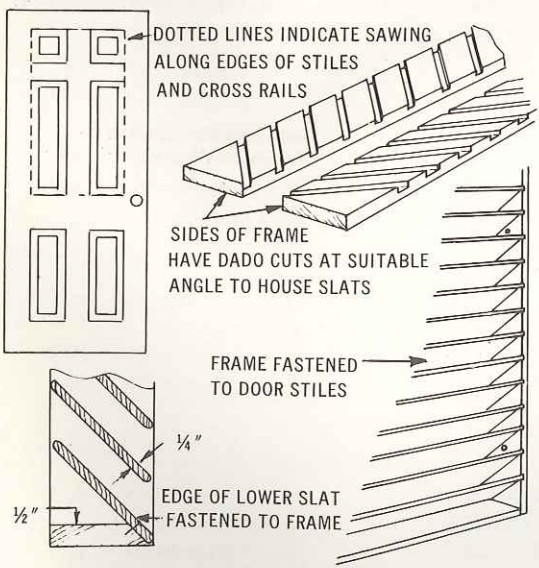


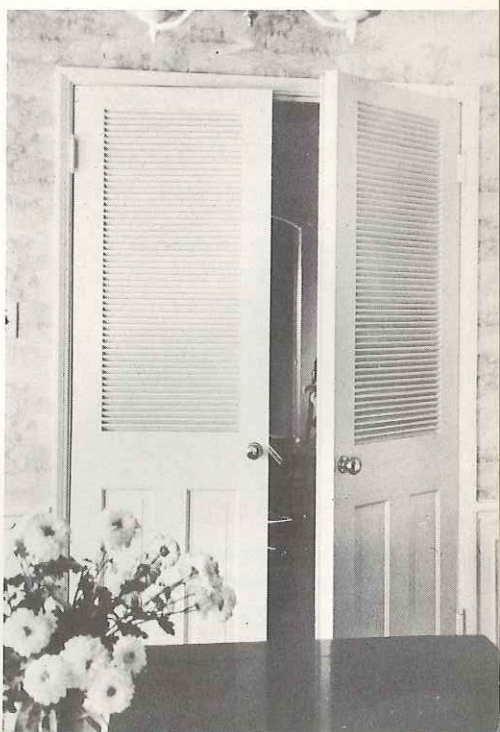
Dutch Door

You can convert either an inside or an outside door to a Dutch door. A shelf is optional. Outside Dutch Doors should be weatherstripped and the upper portion provided with a turn bolt for locking.

Louvers in doors promote constant air circulation. The louver portion may extend from the top to the bottom crossrails of a panel-type door, but the door remains stronger if only the upper portion is louvered. The louver consists of slats glued in dadoes sawed in the sides of a frame fitting the door cutout. Also end nail the slats with brads through the side frames. The louver may be thicker than the door. Angle of the slats and their overlap determines the extent of vision through the door.

Louver Door





Photos courtesy of Western Pine Association

Material Lists

Includes stock required for many but not all projects. Dimensions given in inches except where otherwise stated. For brevity, the figure of ¾ is used instead of the standard 25/32 for finish thickness of nominal 1-in. stock. Hardware such as screws, nails, hinges, door catches and other miscellaneous items not contained in these lists.

Quantity	Material	Sizes	Purpose
BOOKCASE, pg. 6			
(For size 9½" deep, 30 wide and 48 high)			
3 pcs.	white pine	¾ x 9½ x 8 ft.	
or 1 pc.	plywood	¾ x 48 x 60	sides, top and bottom
1 pc.	plywood or hardboard	⅛ or ¼ x 48 x 30	back
1 pc.	white pine or plywood	¾ x 2⅝ x 30	bottom crossrail
HORIZONTAL BATHROOM CABINET, pg. 12			
(For size 5 ft. wide and 24 in. high)			
2 pcs.	white pine	¾ x 4⅝ x 6 ft.	top and bottom
1 pc.	white pine	¾ x 4⅝ x 8 ft.	sides and partition
1 pc.	white pine	¾ x 3⅝ x 6 ft.	top front strip
2 pcs.	molding (to suit)	½ or ¾ x ¾ x 6 ft.	trim
1 pc.	plywood or hardboard	⅛ or ¼ x 48 x 72	back and sliding doors
2 pcs.	glass shelving	¼ x 4 x 33½ (approx.)	shelves
1	sheet-metal box	3 x 4 x 30	planter
1	mirror	cut to suit	
VERTICAL BATHROOM CABINET, pg. 13			
1 pc.	fir plywood	¾ x 48 x 48	sides, top, bottom and shelves
1 pc.	fir plywood	¼ x 48 x 48	doors and back
PLYWOOD DESK, pg. 14			
1 pc.	fir plywood	¾ x 48 x 72	top, cabinet, drawer fronts and backs
1 pc.	fir plywood	½ x 48 x 48	drawer sides and bottoms
1 pc.	hardwood	½ x 1⅝ x 8 ft.	back and side strips
2 pcs.	hardwood	¾ x ¾ x 5 ft.	drawer runners
1 pc.	hardwood	¾ x 3⅝ x 3 ft.	center rail
1 pc.	fir or white pine	1⅝ x 3⅝ x 2 ft.	upper leg rail
1 pc.	fir or white pine	1⅝ x 2 x 20	lower leg rail
1 pc.	dowel or aluminum tubing	¾ or 1 dia. x 6 ft.	legs
COFFEE TABLE, pg. 15			
1 pc.	plywood or hardboard	¼ x 30 x 30	top
3 pcs.	hardwood	1⅛ x 2⅝ x 6 ft.	legs and railing
1 pc.	hardwood	¾ x 2⅝ x 48	leg crosspieces

Material Lists, continued

Quantity	Material	Sizes	Purpose
PHONE AND RADIO NICHE, pg. 16			
1 pc.	white pine	¾ x 3⅝ x 5 ft.	frame
1 pc.	plywood	⅜ or ½ x 8 x 48	shelves and bottom
1 pc.	hardboard or plywood	⅛ or ¼ x 15 x 20	back
1 pc.	white pine	½ x 1⅝ x 6 ft.	trim
BUILT-IN IRONING BOARD, pg. 17			
2 pcs.	white pine	¾ x 4¼ x 6 ft.	frame sides
1 pc.	white pine	¾ x 4¼ x 3 ft.	frame top and bottom
2 pcs.	white pine	¾ x 2⅝ x 10 ft.	trim
1 pc.	hardboard	⅛ x 15½ x 73½	back
1 pc.	plywood	⅝ or ¾ 14¾ x 72¾	door with ⅜" lip edges
1 pc.	plywood (exterior)	¾ x 12 x 48	ironing board
1 pc.	plywood or white pine	¾ x 8 x 4 ft.	ironing-board brace
1 pc.	hardwood	¼ x 1 x 8 ft.	runner guides
1 pc.	dowel	¾ dia. x 14	runner
TENNIS TABLE, pg. 18			
2 pcs.	plywood or tempered hardboard	⅜ or ½ x 48 x 48 plyw. or ¼ x 48 x 48 hardboard	two part top
3 pcs.	white pine	¾ x 5⅝ x 8 ft.	rails and end crossrails
1 pc.	white pine	¾ x 2⅝ x 10 ft.	center crossrail and leg extensions
1 pc.	white pine	¾ x 3⅝ x 10 ft.	legs
2 pcs.	white pine	¾ x ¾ x 6 ft.	cleats
FOOTSTOOL, pg. 19			
1 pc.	hardwood	¾ x 3⅝ x 6 ft.	frame
1 pc.	hardwood	¾ x 2⅜ x 3 ft.	leg crosspieces and corner blocks
1 pc.	hardwood	1⅛ x 3⅝ x 4 ft.	legs
1 pc.	white pine	¾ x 3⅝ x 6 ft.	upholstered frame
1 pc.	fir plywood	¼ x 12½ x 18½	cushion shelf
MAGAZINE BASKET, pg. 21			
1 pc.	plywood	⅜ or ½ x 36 x 4 ft.	ends, bottom and center partition
1 pc.	plywood	¼ x 18 x 24	sides
1 pc.	plywood or hardboard	⅛ or ¼ x 18 x 24	two partitions
MARTIN HOUSE, pg. 26			
1 pc.	exterior plywood	½ x 48 x 36	ends, floor, ceiling and perches
1 pc.	tempered hardboard	⅛ x 48 x 48	roof, sides, doors and partitions
1 pc.	white pine	¾ x 2 x 48	center-partition spacers

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